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ABSTRACT

An evaluation of the automotive engineering pre-apprenticeship course, as found in technical colleges in New South Wales, Australia, was conducted to gather information from pre-apprentice and day-release students concerning student background factors, teaching processes within the course, outcomes of attendance in the course, and course effectiveness. A sample of 73 pre-apprentice students and 60 day-release students at five colleges were administered questionnaires and tests of mechanical aptitude and learning achievement. It was found that a high proportion of the pre-apprentice sample had obtained employment by September of the year following the completion of the pre-apprenticeship course, the majority as automotive mechanics; therefore, this employment rate may well be an indicator of course effectiveness. When compared with the day-release sample, the pre-apprentice students were more satisfied with their course, particularly as regards teaching methods and working conditions at the college. Most of the pre-apprentice students saw their course as relevant and interesting, and as having met their job aspirations. The day-release students, however, were critical of the teaching of skills for their present jobs. Neither the pre-apprentice sample nor the day-release sample made a significant gain in self-confidence; it was concluded that more emphasis should be given to teaching this objective, since the pre-apprentice students said they would like greater emphasis on this topic. The overall conclusion of the study was that many of the pre-apprentice students had benefited by their attendance in the course--a large portion had obtained jobs in their field. (KC)

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Research Report

Evaluation Study of the Automotive Engineering Pre - Apprenticeship Course

R. SMITH - A.R.D.U.

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ASSESSMENT R. & D. UNIT (ARDU)

EVALUATION STUDY

OF THE

AUTOMOTIVE ENGINEERING

PRE-APPRENTICESHIP COURSE

Bob Smith,
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SYDNEY

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Bob Smith

CONTENTS

	Page
Acknowledgments	i
List of Tables and Figures	iv
AIMS OF THE EVALUATION STUDY	1
Specific Objectives of the Evaluation Study	1
EVALUATION METHODOLOGY	2
Methods in Brief	2
Methods in Detail	3
Method of sampling	3
Questionnaires	4
Use of the Aptitude Test and the Achievement Test	5
Data Analysis	6
Limitations of the Evaluation Methodology	7
EVALUATION STUDY FINDINGS	8
Findings concerned with Student Background Factors	8
Actual Time of Leaving Secondary School	9
Leaving School in terms of School Years	10
Student Interest in Attending Technical College	11
Job or Career Awareness	11
Relative importance of Reasons for Leaving School	12
Work Experience Prior to Enrolling	13
Findings from the Work Values Scale	13
Information from Students about their Immediate Job Plans	17
Thoughts on Future Job Possibilities	19
Questions relating to School Attainment in Mathematics and English	21
Findings concerned with Teaching Processes	22
Retention Rate between Time One and Time Two Questionnaires	22
Practicality of the Course	22
Teaching Processes Scale	22
Student perceptions of Working Conditions	25
Findings arising from the Self-Concept Scale	31
The Course Emphasis Scale	36
Retrospective Evaluation of Course	42
Satisfaction Item	44

	Page
Findings arising from Test Data	46
The ACER Mechanical Reasoning test	46
Performance on the Automotive Engineering Achievement Test	46
Findings concerned with Course Outcomes	48
Method of Reporting the Data	50
Response Rate obtained	50
Employment Rate of Pre-apprentice Students	50
Length of Unemployment	51
Student's First Full-time Job	51
Outcomes of the Course in Terms of Gaining Apprenticeships	52
Type of Job Obtained - details of automotive engineering apprenticeships	53
Main Duties of the Job held	54
Job Stability of Former Pre-apprentice Students	54
Reasons for Making Occupational Changes	55
Relative Importance of Reasons for Making Occupational Changes	55
Student Suggestions for Improving the Course	57
GENERAL DISCUSSION OF FINDINGS - Aspects of Pre-apprenticeship Course Effectiveness	58
SUMMARY OF FINDINGS	60
REFERENCES	63
APPENDIX	64
Time One Questionnaire	65
Time Two Questionnaire	73
Time Three Questionnaire	85
Covering & Follow-up letters for Time Three Questionnaire	91

LIST OF TABLES and FIGURES

		Page
Table 1	Evaluation Study Timetable	2
Table 2	Sample Size and Population	4
Table 3	Location of Test/Re-test items in each Questionnaire	5
Table 4	Size of Samples	8
Table 5	Sex composition of Samples	8
Table 6	Age composition of Samples	9
Table 7	Calendar Year of Leaving School	10
Table 8	School Year of Leaving School	10
Table 9	Plans for attending Technical College	11
Table 10	Job awareness when Leaving School	11
Figure 1	Relative importance of reasons for Leaving School	12
Table 11	Work Experience prior to TAFE Course	13
Figure 2	Work Values Scale - Median Rating Profiles (April, '79)	14
Table 12	Work values scale - responses to the item: "work in which people look up to you."	15
Figure 3	Work Values Scale - Median Rating Profiles (November, '79)	16
Table 13	Definiteness of Job Plans	17
Table 14	Timing of choice of Future Job	18
Table 15	Match of Course with Desired Job	19
Table 16	Job Field Nomination	20
Table 17	Levels of Job Aspiration	20
Table 18	Field of Highest Job Aspiration	21
Table 19	Course Practicality Scale	22
Figure 4	Teaching Processes Scale	23
Table 20	Teaching Processes Scale - responses to the item "the teacher provides some work for students which is similar either to what they would do when they finish the course, or to what they are doing now in their job."	24
Table 21	Working Conditions Scale - responses to the item "being treated as an adult - at work".	25
Table 22	Working Conditions Scale - responses to the item "feeling part of a team - at Technical College".	26
Table 23	Working Conditions Scale - responses to the item "the jobs and activities are worthwhile and useful - in Technical College".	26

		Page
Figure 5	Working Conditions Scale - Graphical representation of Median ratings	27
Table 24	Working Conditions Scale - median ratings	28
Table 25	Working Conditions Scale - Means, standard deviation and F-ratios for the item "being treated as an adult - in technical college."	29
Table 26	Self Concept Scale - sample means and standard deviations	32
Table 27	Self Concept Scale, self as student sub-scale - sample means and standard deviations	32
Table 28	Self Concept Scale - responses to item "I often don't understand what the teacher is trying to teach in theory lessons"	33
Table 29	Self Concept Scale - Eigenvalues and Variance percentages	34
Table 30	Self Concept Scale - Factor one, factor scores and standard deviations	35
Table 31	Course Emphasis Scale - Median ratings of major objectives of vocational education for Automotive Engineering students	36
Figure 6	Course Emphasis Scale - Pre-apprenticeship students, median emphasis ratings	37
Figure 7	Course Emphasis Scale - Day release students, median emphasis ratings	38
Figure 8	Course Emphasis Scale - Actual emphasis ratings, comparison of Pre-apprentice and Day release students	39
Table 32	Course Emphasis Scale - responses to item "how much emphasis has been given to skills, knowledge and techniques for the practice of a present or future job?"	40
Figure 9	Course Emphasis Scale - Desired emphasis rating, comparison of Pre-apprentice and Day Release students	41
Figure 10	Retrospective Evaluation of Course - median rating profile	42
Table 33	Retrospective Evaluation of Course - responses to item "preparation in terms of practical skills required to do my job."	43
Table 34	Retrospective Course Evaluation - responses to the item "how well did the course prepare you? - guidance on how to obtain a job."	44
Table 35	Overall Course Evaluation	45
Table 36	Mechanical Reasoning Test	46
Table 37	Automotive Achievement Test, April '79 - Means and standard deviations	47
Table 38	Automotive Achievement Test, November '79 - Means and standard deviations	47

		Page
Table 39	Automotive Achievement Test, April and November '79 - comparison of mean scores between April and November	47
Figure 11	Flow Chart illustrating the method of answering the Time Three Questionnaire	49
Table 40	Responses to "which of the following statements best describes your present job?"	50
Table 41	Responses to "how long did it take you to find a full-time job after you finished your pre-apprenticeship course last year?"	51
Table 42	Responses to "what type of job is your present job?"	52
Table 43	Responses to "what type of firm do you work for?"	53
Table 44	Responses to "have you changed jobs to get an apprenticeship in the automotive engineering trade area?"	55
Table 45	Responses to "have you changed jobs to move out of the automotive engineering trade area?"	55
Figure 12	Profile of median ratings of importance of reasons for occupational change	56

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AUTOMOTIVE ENGINEERING PRE-APPRENTICESHIP COURSE EVALUATION

AIMS OF THE EVALUATION STUDY

The general aims of the Evaluation Study were -

(A) To gather information from pre-apprentice and day release students concerning student "background" factors, teaching processes within the course and outcomes of attendance in the course.

(B) To report findings made from data analysis.

(C) To discuss aspects of Pre-apprenticeship course effectiveness.

The evaluation study design was based on the methodology for Pre-vocational Course Evaluation Studies developed by John Ainley and Adrian Fordham of the Australian Council for Educational Research in 1978, (1). However, the Airley and Fordham design has been modified to allow comparison between a pre-apprenticeship and day release sample. Details of the evaluation design appear below.

Specific Objectives of the Evaluation Study

These may be listed as -

1. To gather information in 1979 about personal backgrounds of the students, career plans, work values, self concept and other factors relating to course entry,

2. To gather information in 1979 about teaching processes, course emphasis, the practicality of the course, learning achievement in trade theory and other facets of the running of the course,

3. To gather information in 1980 about outcomes of attendance in the Pre-apprenticeship course such as rate of subsequent employment, attitudes to working conditions and job stability,

4. To analyse the data obtained from questionnaires and tests,

and 5. To report on findings arising from the data.

The strategies used in attempting to meet these objectives are described below.

EVALUATION METHODOLOGY

Methods in Brief

The evaluation design was a modification of the Ainley and Fordham methodology. (A detailed explanation of methods used appears subsequent to this section.)

Two samples were taken -

(a) 73 pre-apprentice students from the Automotive Engineering Pre-apprenticeship (mono) course.

and (b) 60 day release students.

Cluster sampling was used. This meant, in effect, that five pre-apprentice groups were selected at random from the ten existing groups. The groups (of 15 students each) were located at the following colleges -

North Sydney
Wollongong
Sydney
Granville
Miller.

The day release student sample was obtained by asking for access to a group (15 students) of Automotive Engineering day release course students (Stage I) at each of the five colleges listed above. The actual size of the day release sample was somewhat below 75 due to the absence of a number of students on the dates of administration.

Questionnaires and tests were administered on the timetable set out in Table One below.

Table 1

EVALUATION STUDY TIMETABLE

	April 1979	November 1979	September 1980
Pre-apprentice sample	Answered Time One questionnaire. Completed Mechanical Reasoning test and Theory Achievement test.	Answered Time Two questionnaire. Completed re-test of Theory Achievement test.	Answered Time Three mail questionnaire.
Day release sample	Answered Time One questionnaire. Completed Mechanical Reasoning test and Theory Achievement test.	Answered Time Two questionnaire. Completed re-test of Theory Achievement test.	

The questionnaires were the information-gathering instruments while the tests measured mechanical aptitude and learning achievement. Reasons for using these instruments are given in the detailed section below.

Methods in Detail

The methods used amounted to a substantial modification of the Ainsley and Fordham methodology for evaluating Pre-vocational courses. The major modification allowed for the taking of a sample of day release students to enable comparison of questionnaire responses and test performance with the pre-apprentice sample.

Three separate episodes of data collecting were arranged and carried out (reference may be made to Table One).

The Time One and Two questionnaires were administered to both samples while the Time Three questionnaire was a follow-up mail survey which was answered by pre-apprentice students only.

The main function of this design was to gather information which could be used to throw light on course effectiveness. This information may be factual or attitudinal. The way the students perceived the course in retrospect (for instance) is an important aspect of attitudinal information. Stufflebeam et al (2) have described and championed the information gathering approach to program evaluation. They say "educational evaluation is the process of delineating, obtaining and providing useful information for judging decision alternatives". The idea is that by asking relevant questions and presenting findings in a clear way the evaluation process may aid in decisions concerning course effectiveness.

The evaluation design has also allowed for the measurement of gains in theoretical learning between April 1979 and November 1979. The gains made by each sample group can thus be compared and achievement gains can also be compared with measured mechanical aptitude.

The design included a student "follow-up" component which surveyed outcomes of student attendance in the course. While this considerably extended the time taken to collect and report on data, it is thought that it allowed more meaningful comments to be made concerning course effectiveness.

Method of Sampling

A decision was made to use cluster sampling (a type of non-random sampling). This was done by making a random selection of pre-existing pre-apprenticeship groups in TAFE colleges. (A group is made up of fifteen students). The "mono-course" groups only were considered for selection. These numbered ten and were located in eight colleges (two colleges had two groups each). In the "mono-course" students learnt material related to the Automotive Engineering trade course only as distinct from "composite" pre-apprenticeship courses such as Automotive Engineering/Welding. Of the ten mono-course groups which were running in 1979, five were randomly selected. These were:

(a) one of the two existing groups at each of North Sydney and Wollongong, and

(b) the groups at Sydney, Granville and Miller Technical Colleges.

As mentioned above, this was not a random sample but was a reasonable approximation to one. Cluster sampling had the advantage of causing minimal disruption to normal classes.

The day release sample was also obtained in a convenient and minimally disruptive fashion. Firstly, a timetable was worked out for administering the Time One instruments to the five pre-apprentice groups in the five colleges. Then arrangements were made to meet with a Stage I day release group at the same time as the meetings with the pre-apprentice groups. Thus, five Stage I day release groups taken from North Sydney, Wollongong, Granville, Miller and Sydney Technical Colleges formed the day release sample. Thus the Time One and Time Two

data collection periods involved the simultaneous administration of instruments to pre-apprentice and day release students at the five colleges named above.

The sample sizes and approximate population sizes are shown b low. (While five groups are equivalent to 75 students, both sample sizes are below that figure due to student absences on the days of administration.)

Table 2

SAMPLE SIZE AND POPULATION

	Pre-Apprentice Students	Day Release Students
Sample size	73	60
Approximate population size	150	2,300

Questionnaires

Three questionnaires were used to gather the desired information.

The Time One and Time Two questionnaires aimed to gather information on student background factors and course processes respectively. Most of the questionnaire items were designed simply to provide factual information and to measure student attitudes. Some of the items were modified Ainley and Fordham items and some were produced by the writer or used with the permission of another writer. However, it was appropriate and practical to use many of the Ainley and Fordham items in the "intact" state.

Some of the items to be found in the Time One and Time Two questionnaires were used as what may be termed as "test/re-test" items. For example, students answered the same question about the definiteness of their job plans in both the Time One and Time Two questionnaires. The aim was to see what changes had occurred in the time between administrations. A further example is the self concept scale which was completed by students at Time One and Time Two so that comparisons could be made between April and November scores.

The other items used in the "test/re-test" mode were:

(a) the work values scale (called "Thinking about Work")

(b) the future job possibilities item (called "Your Future Possibilities"), and

(c) the working conditions scale (called "You and Your Work").

The reader should refer to the reproductions of the three questionnaires in the Appendix and also to the table below to obtain more details about these items. Table 3 indicates when the items were used and gives details of the locations of the items in each questionnaire.

Table 3

LOCATION OF TEST/RE-TEST ITEMS IN EACH QUESTIONNAIRE

Time One Questionnaire	Time Two Questionnaire	Time Three Questionnaire
Work values Scale (item 10)	Work values Scale (item 12)	
Definiteness of job plans (item 11)	Definiteness of job plans (item 13)	
Future job possibilities (item 16)	Future job possibilities (item 14)	
Self concept scale (item 22)	Self concept scale (item 15)	
	Working conditions scale (item 10)	Working conditions scale (item 14)

The Time Three Questionnaire was modelled on the Ainley and Fordham Career Questionnaire. It sought information on the student's present occupation, his attitude to working conditions, his retrospective evaluation of his course, his job stability and related information. The major objective behind the use of this mail questionnaire was to determine the rate of subsequent employment of the pre-apprentice sample and in particular, how many of those who obtained jobs were apprenticed in the automotive engineering industry. It was hoped that this would throw some light on course effectiveness. The second last question was an opportunity for the student to make a retrospective course evaluation (this information is often not available with an innovative course). This implies feedback from the student as to what the benefits of the course actually were to him.

Method and dates of administration.

Table One (Evaluation Study Timetable) gives a broad picture of the timing of questionnaire administration for the Time One and Time Two instruments. On both occasions it took approximately one week to visit the five centres. Arrangements were made to administer the instruments to both samples at the same time and the visits were made by the writer and on one occasion by Kate Buchanan, Professional Assistant, Assessment Research and Development Unit. The actual procedure of getting the students to complete the questionnaires was kept uniform on each occasion.

The Time Three mail questionnaire was trialled at St. George Technical College prior to being used. The first posting of the questionnaire was on August 19th, 1980. A short covering letter accompanied the questionnaire forms exhorting the students to return them. The second and third "follow-up" mailings were made at three week intervals after August 19th and these were accompanied by "follow-up" letters. (The questionnaire and "follow-up" letters are reproduced in the Appendix). This strategy was decided on after reference to colleagues and to the relevant literature. It achieved a response rate of 73%.

Use of the Aptitude Test and the Achievement Test.

The aptitude test used was the Australian Council for Educational Research Mechanical Reasoning Test. The plan was to compare the mechanical aptitude of the pre-apprentice and day release samples and then to use that information in conjunction with the achievement test data. If the reader refers to Table One (Evaluation Study Timetable) he/she will be informed of the timetable of administration of both the aptitude test and the achievement test.

Automotive engineering achievement test - construction details.

This test was jointly prepared by the writer and teachers of Automotive Engineering at Sydney Technical College in March, 1979. The range of content to be tested was specified as the theoretical material taught in Stage I of the day release course. (This is equivalent to the theory taught to the pre-apprentice groups in Semester One of their course). Also, it was necessary to limit the number of items to be used and therefore to limit the amount of time that would be necessary for the students to complete the test. For this reason the test was made up mainly of multiple choice items and the total number of items was 25. A table of test specifications was set up which gave details of how many items were to be set on each theoretical content area.

The Automotive teachers then selected multiple choice items from the Automotive Engineering Item Bank according to the test specifications and also wrote three additional short-answer items so that an appropriate coverage of the theoretical material could be achieved. The test was made up of 22 multiple choice items and 3 short-answer items and, following its use on two occasions, it has been found to be a reliable instrument (see Evaluation Findings section for details).

As shown above, it was administered as a pre-test and as a post-test to both samples in April and November 1979. This allowed the achievement gains made during the year to be compared with the measured aptitude of each sample. Of course, under this system, it was expected that the pre-test scores would be low, due to the students having not covered much of the material by April. All of the theory tested should have been taught by November (post-test).

Data Analysis

A large amount of data were generated by this study and computer analysis was both appropriate and necessary. It was carried out by using the computing facilities of the University of Sydney and employing the Statistical Package for the Social Sciences (SPSS) software system as described in Nie et al, (1975), (3). Operations carried out by the computer included -

(1) the printing of cross-tabulation tables for all variables from the Time One and Time Two questionnaires, (some statistics were also calculated);

(2) the printing of frequency tables and associated statistics for all variables from the Time Three mail questionnaire;

(3) the calculation of self concept scores and sample means and standard deviations;

(4) factor analysis on selected variables;

(5) discriminant analysis on selected variables;

(6) multiple classification analysis of variance on selected variables.

Some calculations were carried out by hand. An example was median ratings for scale items.

The aptitude and theory achievement tests were marked by hand, sample means and standard deviations were calculated and appropriate statistical tests were applied.

Limitations of the Evaluation Methodology

This methodology made it possible to test for improvements in the learning of Automotive Engineering Theory between April and November, 1979. However, it has been suggested that testing of the level of performance of practical Automotive Engineering skills could have been carried out with a view to ascertaining how much improvement each sample showed in practical skills between April and November, 1979. The best design may have been to use a carefully developed and widely trialled practical test as a pre-test/post-test instrument in the same way as the theory achievement test was used. If this had been done it may have allowed for comparisons to be made between the relative effectiveness of the Pre-apprenticeship and Day release courses in teaching basic practical skills. However, due to the practical difficulties of setting up and conducting a valid and reliable practical test in the very limited time available in 1979, this was not done. Any future studies of Pre-apprenticeship courses may be able to include such a test into their design.

EVALUATION STUDY FINDINGS

There will be four sections devoted to a description of the findings -

(1) Findings concerned with student background factors,

(2) Findings concerned with teaching processes,

(3) Findings arising from test data,

and (4) Findings concerned with course outcomes.

Following these four sections there will be a discussion of the findings and a summary of the findings is also available.

Findings concerned with Student Background Factors

In this section I will report on data principally obtained from the Time One questionnaire. Initial discussion of findings will be included where this is appropriate. Please note that the Time One questionnaire is reproduced in the Appendix.

The size of each sample at the time of administration of the Time One questionnaire is shown below.

Table 4

SIZE OF SAMPLES, APRIL, 1979.

	Pre-apprentice sample	Day release sample
Number of students	73	60

The sex composition of the two samples is shown below.

Table 5

SEX COMPOSITION OF SAMPLES, APRIL, 1979.

	Pre-apprentice sample N = 73	Day release sample N = 60
Male	100%	100%
Female	0%	0%

The age composition of the samples is shown below.

Table 6

AGE COMPOSITION OF SAMPLES, APRIL 1979.

Sample / Age in years	Pre-apprentice N = 73	Day release N = 60
15	0%	2%
16	47%	43%
17	29%	35%
18	20%	8%
19	4%	8%
20	0%	2%
21	0%	0%
22	0%	0%
23	0%	0%
24	0%	0%
25	0%	2%

Chi square = 12.95, p = .53

The samples are similar in age composition.

Actual Time of Leaving Secondary School

In Question One, students were asked to nominate the calendar year in which they left secondary school. This information is to be found in Table 7.

Table 7

CALENDAR YEAR OF LEAVING SCHOOL
(Data collected in April, 1979)

Calendar year of leaving school	Pre-apprentice sample N = 73	Day release sample N = 60
1970 to 1974	0%	3%
1975	2%	5%
1976	0%	3%
1977	4%	19%
1978	91%	67%
1979	3%	3%

Chi square = 11.9770, p = 0.0006

The Chi square test indicated that the obtained frequencies were significantly different beyond the 0.01 level. It can be said that the day release course is more likely to have students in it who have been out of school for one year or more. It is possible that some of these students may have work experience before becoming an automotive apprentice and commencing TAFE studies.

When did the Students Leave School in terms of School Years?

The pre-apprentice and day release students were asked "In what Year or Form did you leave secondary school?" The response pattern is tabulated below.

Table 8

SCHOOL YEAR OF LEAVING SCHOOL
(data collected April 1979)

Sample / Response	Pre-apprentice N = 73	Day release N = 60
Year 10	61%	76%
Year 11	17%	14%
Year 12	22%	10%

Chi square = 4.1071, p = 0.13

The observed differences between the two groups are not statistically significant (Chi - square test).

Non-reporting of some Time One Data

Data from questions three, six, seven, twelve and thirteen (Time One questionnaire) are not reported on because they did not add to information which was obtainable from responses to other associated questions.

Student Interest in Attending Technical College

Question Four poses the question "when you left secondary school did you plan to attend a Technical College?" Table 9 (below) gives details.

Table 9

PLANS FOR ATTENDING TECHNICAL COLLEGE
(data collected April 1979)

Sample / Response	Pre-apprentice N = 73	Day release N = 60
Yes	61%	68%
No	39%	32%

The samples are similar in their responses and indicate a fairly high level of interest in attending a Technical College. This could be because many of the students want to "learn a trade" after they get out of school.

Job or Career Awareness

Question 5 asked - "when you left secondary school did you have a specific job or career in mind?"

Table 10

JOB AWARENESS WHEN LEAVING SCHOOL
(data collected April 1979)

Sample / Response	Pre-apprentice N = 73	Day release N = 60
Yes	90%	73%
No	10%	27%

Chi square = 6.7152, p = 0.01

There was a statistically significant difference in response patterns to this question (Chi square test) and it indicates that the pre-apprentice students were more likely to have a specific job in mind when they left secondary school. However, this question gives no information on what the specific jobs actually were - it simply indicates that the pre-apprentice students were more settled in their minds about a possible future job.

Importance of Reasons Given for Leaving Secondary School

Question Nine attempted to gauge the relative importance to students of a list of supplied reasons for leaving secondary school. This question was based on the Ainley and Fordham item but it was modified to suit automotive engineering students.

Both sample groups responded in a very similar fashion (no statistically significant differences occurred) and rated only one reason as being very important. They said they "liked the idea of getting a job where they could work with their hands" and rated this as an important reason for leaving school (note - most students left school at the end of Year 10 or 11).

The reader will get a full picture of student attitudes by studying Figure One (below). This shows profiles of the median ratings made by each sample. Note that the pre-apprentice and day release students agreed on the importance of the second item in the scale.

FIGURE 1 RELATIVE IMPORTANCE OF REASONS FOR LEAVING SCHOOL

Median Rating Profiles - Pre-apprentice and Day Release samples, April, 1979.

Think of your decision to leave secondary school and consider how important each of the following reasons were in that decision. Circle 1 if the reason was very important to you and 5 if it was not at all important. Otherwise circle 2, 3 or 4 to show that the reason was fairly important, of some importance or of little importance to you.

	Very important	Fairly important	Of some importance	Of little importance	Not at all important
I wanted to do a Technical College course instead of staying at school					
I liked the idea of getting a job where I could work with my hands					
I had enough school education					
I had completed the highest year at my school					
My parents wanted me to learn a trade					
My exam results were not good enough					
School did not lead to good job opportunities					
I thought I did not have enough ability to keep on studying					
My parents did not want me to stay at school					
I did not like certain subjects at school					
My teachers thought I should not continue					

——— Pre-apprentice median profile.

..... Day release median profile.

The responses to three other items are worthy of comment -

(1) Both samples thought that a fairly important reason for leaving school was "to do a Technical College course instead of staying at school". This agrees with the finding illustrated by Table 8(above) which was that the larger proportion of the students (taken as a combined group) had plans for attending Technical College after leaving school.

(2) Both groups said that a reason "of some importance" was that "school did not lead to good job opportunities".

(3) Both groups also agreed that a reason "of some importance" was that "my parents wanted me to learn a trade".

Work Experience Prior to Enrolling in TAFE Course

The response pattern to Question Eight was very interesting. It asked - "have you worked full-time for more than six months at any time since leaving secondary school and before commencing your present course?" The responses are tabulated below.

Table 11

WORK EXPERIENCE PRIOR TO TAFE COURSE

(data collected April, 1979)

Sample / Response	Pre-apprentice N = 73	Day release N = 60
YES	3%	22%
NO	97%	78%

Chi square = 11.8589, p = 0.01

A larger proportion of the day release sample had worked full-time for more than six months since leaving school and before commencing their present course. This difference was significant at the 0.01 level (Chi Square test). The day release students are therefore more likely to have taken part in full-time work between school and their course.

Findings from the Work Values Scale (Question Ten, Time One Questionnaire).

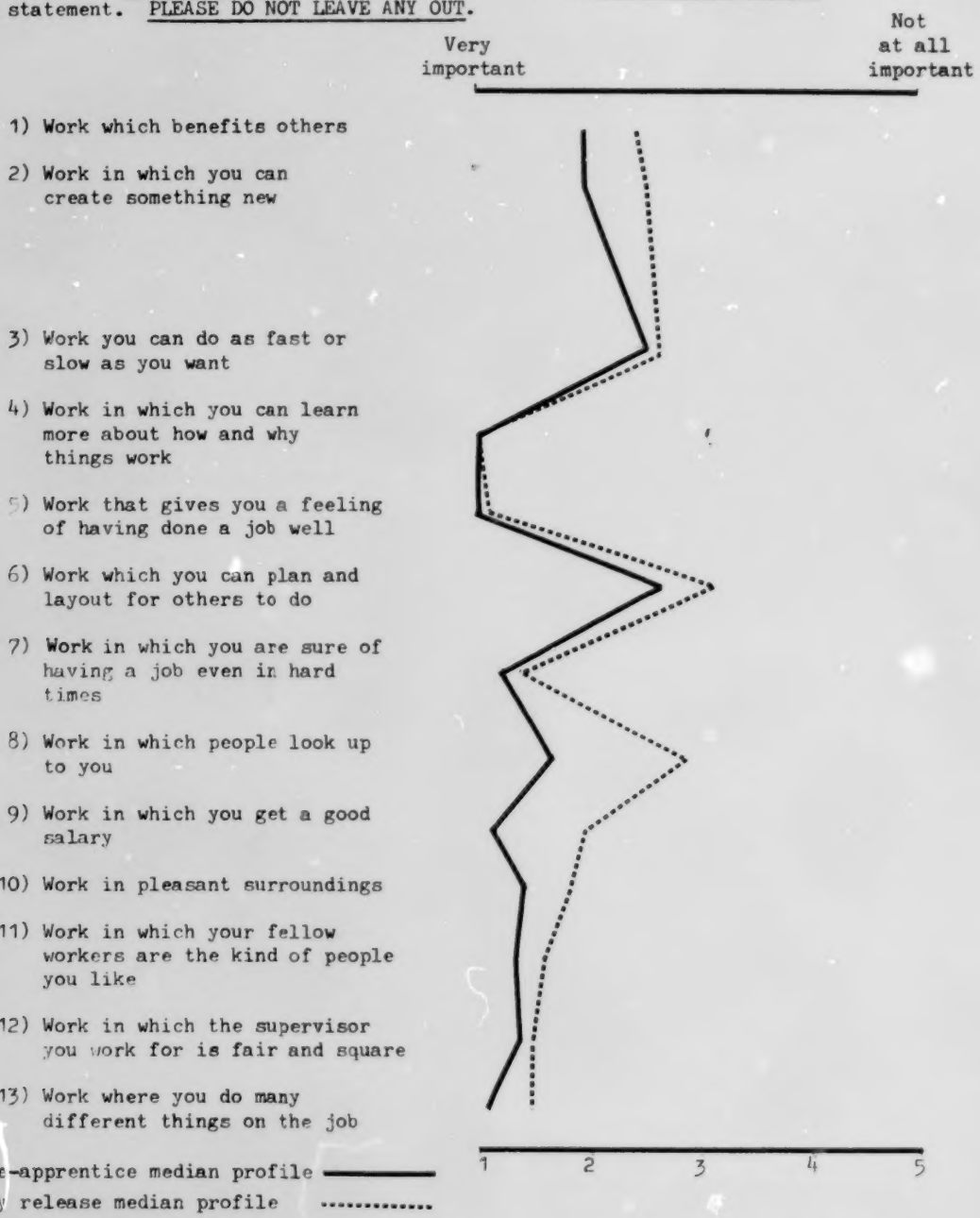
A Work Values scale was administered to both the pre-apprentice sample and the day release sample in April 1979 (Time One questionnaire) and November 1979 (Time Two questionnaire). The aim was to find out what values the students held and whether they changed over the period of the Pre-apprenticeship course or of Stage I of the Day release course.

The students were asked to read a list of thirteen statements and to rate the importance of each statement in thinking about work. Median ratings have been calculated for each item and median profiles have been drawn below in Figures 2 and 3.

FIGURE 2 WORK VALUES SCALE

Median Rating Profiles - Pre-apprentice and Day Release samples, April, 1979.

We would like to know how important the following statements are to you in thinking about work. To complete this section, please circle a number between 1 (which indicates VERY IMPORTANT) and 5 (which indicates NOT AT ALL IMPORTANT) for each statement. PLEASE DO NOT LEAVE ANY OUT.


Very important
Not at all important
1) Work which benefits others
2) Work in which you can create something new
3) Work you can do as fast or slow as you want
4) Work in which you can learn more about how and why things work
5) Work that gives you a feeling of having done a job well
6) Work which you can plan and layout for others to do
7) Work in which you are sure of having a job even in hard times
8) Work in which people look up to you
9) Work in which you get a good salary
10) Work in pleasant surroundings
11) Work in which your fellow workers are the kind of people you like
12) Work in which the supervisor you work for is fair and square
13) Work where you do many different things on the job
1 2 3 4 5
Pre-apprentice median profile
Day release median profile

The similarity of the profiles is very evident above. Only with respect to items eight and nine is there any apparent difference of opinion at this point in time.

The day release sample students thought statement eight was only "of moderate importance" while they thought statement nine was less than "very important" but more than "of moderate importance". The pre-apprentice students rated both aspects of work as very important or quite important. A tabulat on of responses to item eight is made below.

Table 12

WORK VALUES SCALE

April, 1979.

Item: How important is the following statement to you in thinking about work - "work in which people look up to you."

Sample / Responses	Pre-apprentice sample N = 73	Day Release sample N = 60
1 (Very important)	51%	18%
2	26%	23%
3	4%	19%
4	6%	18%
5 (Not at all important)	13%	22%

Chi Square = 22.5013, p = 0.0001

Here the difference between the groups is statistically significant at below the 0.01 level. The pre-apprentice students seem to value work which gives them a degree of status.

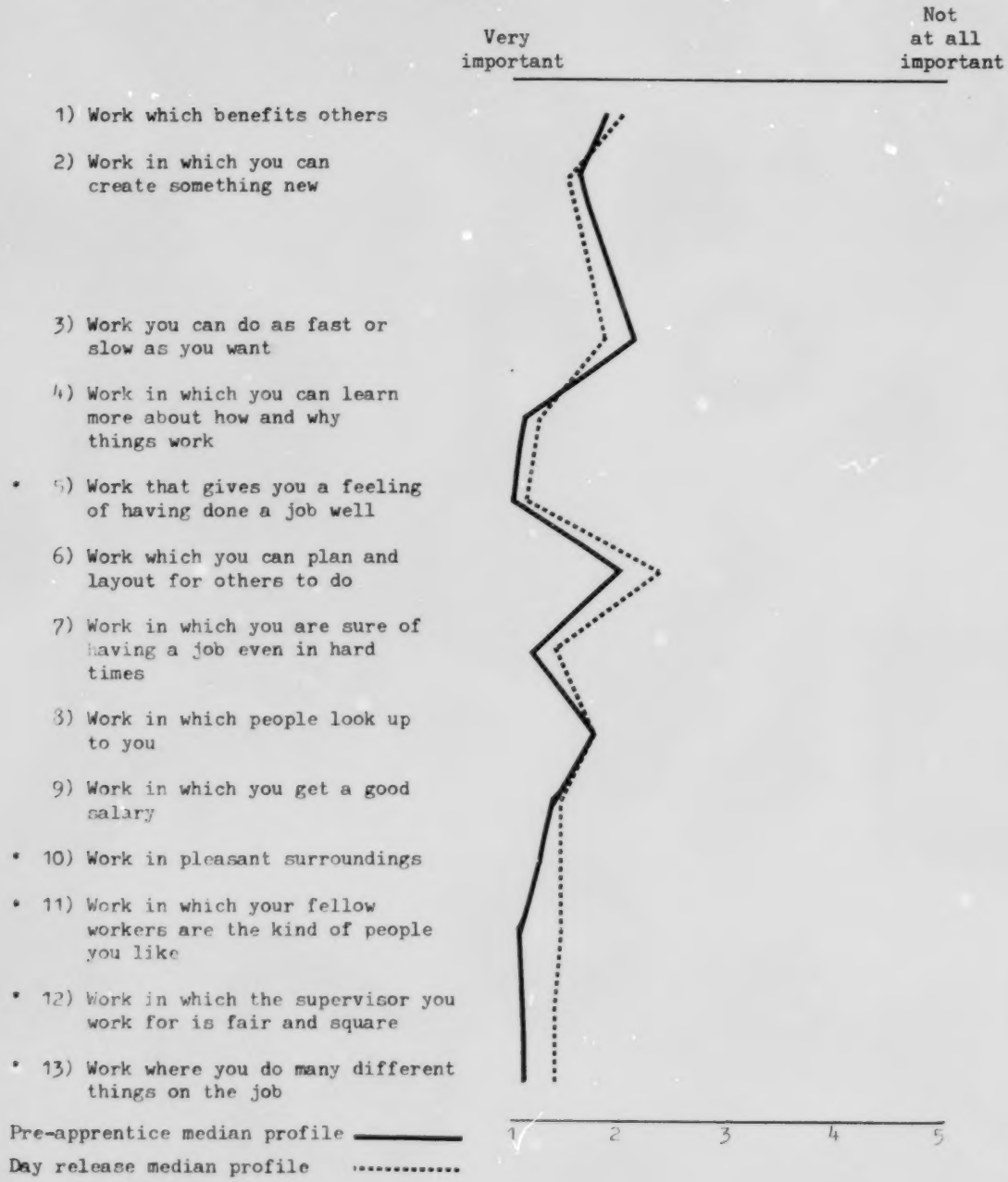
When median profiles were drawn and Chi Square tests of significance applied to the Time Two (November 1979) data some variation in work values was noted.

Figure 3 gives the overall picture of median ratings.

FIGURE 3 WORK VALUES SCALE

Median Rating Profiles - Pre-apprentice and Day Release Samples; November, 1979.

We would like to know how important the following statements are to you in thinking about work. To complete this section, please circle a number between 1 (which indicates VERY IMPORTANT) and 5 (which indicates NOT AT ALL IMPORTANT) for each statement. PLEASE DO NOT LEAVE ANY OUT.


Very important
Not at all important
1) Work which benefits others
2) Work in which you can create something new
3) Work you can do as fast or slow as you want
4) Work in which you can learn more about how and why things work
5) Work that gives you a feeling of having done a job well
6) Work which you can plan and layout for others to do
7) Work in which you are sure of having a job even in hard times
8) Work in which people look up to you
9) Work in which you get a good salary
10) Work in pleasant surroundings
11) Work in which your fellow workers are the kind of people you like
12) Work in which the supervisor you work for is fair and square
13) Work where you do many different things on the job
1
2
3
4
5
Pre-apprentice median profile
Day release median profile

The reader should note that both samples now agree that the "status" item and the "good salary" item are quite important. The statistically significant differences which were present in April have now disappeared and the change in opinion seems to have been made by the day release students.

However, differences have appeared between the samples with respect to other work values. The items where a statistically significant difference occurred in November have been marked with an asterisk in Figure 3. The test of significance used was the Chi Square test. Note that the pre-apprentice students consistently rate the work values at a higher importance level than do the day release students. It is difficult to see any other pattern in this data and perhaps the clearest conclusion that can be made is that there were differences in work values between the two groups, and that the observed differences in April in preference for "status" and "good salary" were not stable over the period of the teaching year.

Information from Students about their Immediate Job Plans

This section of the questionnaire (items eleven to fifteen) asked students about their plans for a future job. Questions eleven to fourteen were completed by the pre-apprentice sample only, because the day release students already had a job.

Definiteness of Job Plans - April and November, 1979.

This test/re-test item was answered by the pre-apprentice sample only. The question was "how definite are your plans for a job." Table 13 shows the responses.

Table 13

DEFINITENESS OF JOB PLANS

(Data collected in April and November, 1979)

Response from Pre-apprentice sample	% of PA sample April 1979, N = 73	% of PA sample November 1979, N = 53
1. I have a job arranged for when I finish the course	16%	28%
2. I know exactly the kind of job I want	57%	47%
3. I am trying to decide between two or three different kinds of jobs	12%	13%
4. I am considering more than three different kinds of jobs	3%	2%
5. I do not have any specific job in mind at this time	12%	7%

The largest proportion of students in both April and November "knew exactly the kind of job they wanted." The situations in April and November were quite similar, with the most noticeable aspect being an increase with time of the number of pre-apprentice students who had a job "arranged for when I finish the course".

The 10% reduction in numbers of students making response two is probably explainable by these students having arranged a job between April and November. The fact that jobs can be obtained prior to the completion of the course seems to be a positive reflection on the effectiveness of the course.

The response five percentage has dropped between April and November. However, the fact that even 7% of a selected group say that they have no specific job in mind close to the end of the pre-apprenticeship course is a matter for some concern. Perhaps such students should be given some vocational counselling towards the end of their course to aid them in making a decision.

Question fourteen asked the pre-apprentice students "when was your choice of future job made?". Table 14 shows the way the students answered the question.

Table 14

TIMING OF CHOICE OF FUTURE JOB

(Data collected April, 1979)

PRE-APPRENTICE SAMPLE	
Response	% of PA sample
While in primary school	14%
While in secondary school	47%
At the time of completing secondary school	8%
After leaving secondary school but before starting this course	18%
Some time after starting in the present course	1%
No choice as yet	12%

The largest proportion of PA students made their choice of future job "while in secondary school". Looking at the overall response pattern, it is clear that the majority of this student sample made their choice of job relatively early with only 31% being undecided after completing school.

It is somewhat disturbing to observe that 12% of students in the PA sample say they have made no choice of future job "as yet". However, the wording of the question is somewhat vague and some of this 12% may actually want to work in the automotive field but have made no definite choice of whether they want to be a car mechanic, brake mechanic, heavy equipment mechanic, etc.

Question fifteen was "think of the job you would most like to have. Is your present course in that job area?" Both the pre-apprentice and day release samples were able to answer this question. The responses are shown below.

Table 15

MATCH OF COURSE WITH DESIRED JOB

(Data collected April, 1979)

Response \ Sample	Pre-apprentice N = 73	Day release N = 60
YES	85%	78%
NO	15%	22%

There was no significant difference between the response patterns of the two samples. When the two samples were combined, 82% of the students said that their course matched with the job they most wanted to have.

The Future Job Possibilities Question

This was an open-ended question which encouraged the respondents to think in a somewhat different context to that of the previous groups of questions on immediate job plans. In this question the students were asked to list all the occupations they thought they could do and would like, given the favourable (and rather unusual) circumstances of being assured of any necessary training and of being guaranteed they would get the job after being trained. Please note that this question was used in the "test/re-test" mode and was administered in April and November, 1979.

Responses were coded in this way -

(a) Classifying each job listed into a job field using the classification scheme used for the Commonwealth statistical survey of TAFE. (4)

(b) Choosing which listed job represented the level of highest aspiration and classifying it using the following levels of employment -

Professional level
Para-professional level
Technician level
Managerial level
Clerical level
Trade level
Semi-skilled level
Unskilled level
Unclassifiable

(c) Answering the question - "Is the level of highest aspiration in the Automotive field or not?"

Results of coding - job fields nominated

The two samples suggested jobs which they might do in a similar fashion and no statistically significant difference occurred. A count was mad of the most frequently nominated job fields (combined samples). The following table indicates how many times jobs in the four most frequently nominated fields were listed.

Table 16

JOB FIELD NOMINATION

(Combined Samples, April, 1979)

JOB FIELD	Number of times jobs were nominated in a particular field
Automotive Engineering	284
Building	33
Mechanical Engineering	24
Art, music and entertainment	20
Field not classifiable	102

The automotive field, as expected, figured very prominently in the job expectations of the students.

What levels of employment do students aspire to?

The largest proportions of both student samples had the Trade level of employment as the level of highest aspiration WHILE in the next largest proportion of cases it was impossible to classify the level of highest aspiration. (See below).

Table 17

LEVELS OF JOB ASPIRATION

(Data collected April, 1979)

Level of highest aspiration	PA sample %'s N=70	DR sample %'s N=52
Professional	4%	4%
Technician	6%	4%
Managerial	1%	8%
Clerical	0%	2%
Trade	47%	44%
Unclassifiable	42%	38%

The table clearly shows the Trade level as the most frequently reported level of aspiration. The Technician and Professional levels were the subject of aspiration of only a minority of students. In many cases the level of highest aspiration was unclassifiable as students nominated jobs which perhaps would be best described as "fantasy" jobs, e.g. pilot, professional golfer or racing car driver.

Was the highest level of job aspiration in the automotive field?

It was only possible to answer this question in cases where it was possible to classify the highest level of job aspiration into one of the 5 levels listed above. The number of cases where the decision could be made as to whether the job aspired to fell into the Auto field or not was as follows:

Pre-apprentice sample : 41

Day release sample : 30

Table 18 gives the relevant details:

Table 18

FIELD OF HIGHEST JOB ASPIRATION

(Data collected April, 1979)

Job field of highest aspiration	PA sub-sample N = 41	DR sub-sample N = 30
Automotive Engineering field	83%	77%
Field other than Automotive Engineering	17%	23%

The automotive field is clearly the subject of the majority of job aspirations in these two sub-samples.

When the November data from this "test/retest" item were analysed the response patterns were seen to be very similar. The automotive field remained the subject of the majority of job aspirations.

Questions relating to School Attainment in Mathematics and English.

Questions twenty and twenty-one sought information on the above topic. When the data obtained were discussed with two representatives of the School of Automotive and Aircraft Engineering Trades, they said they had doubts about the accuracy of the information given by the day release sample. The data will therefore not be reported as meaningful comparisons between the two samples are not possible.

The Self Concept Scale - "Thinking about Yourself".

This was a test/re-test item and is therefore reported on under the heading of "findings concerning teaching processes".

Findings concerned with Teaching Processes

Retention Rate between Time One and Time Two Questionnaires

The retention rate between the April and November, 1979 data collecting sessions was 74% for the pre-apprentice sample and 88% for the day release sample.

Practicality of the Course

The pre-apprentice and day release students were asked about how practical they thought their respective courses were.

The pre-apprentice students had a greater tendency to agree that

(a) "the course atmosphere is practical and useful things are explained",

and (b) "many teachers stress the practical uses of their subject".

On (a) (above) there was a significant difference using the Chi-square test. (See Table 19 below).

Table 19

COURSE PRACTICALITY SCALE; NOVEMBER, 1979

Item: The course atmosphere is practical and useful things are explained.

SAMPLE / RESPONSE	Pre-apprentice sample N=54	Day release sample N=55
Strongly agree	22%	7%
Agree	65%	55%
Don't know	6%	18%
Disagree	7%	15%
Strongly disagree	0%	5%

Chi square = 11.4123, p = 0.01

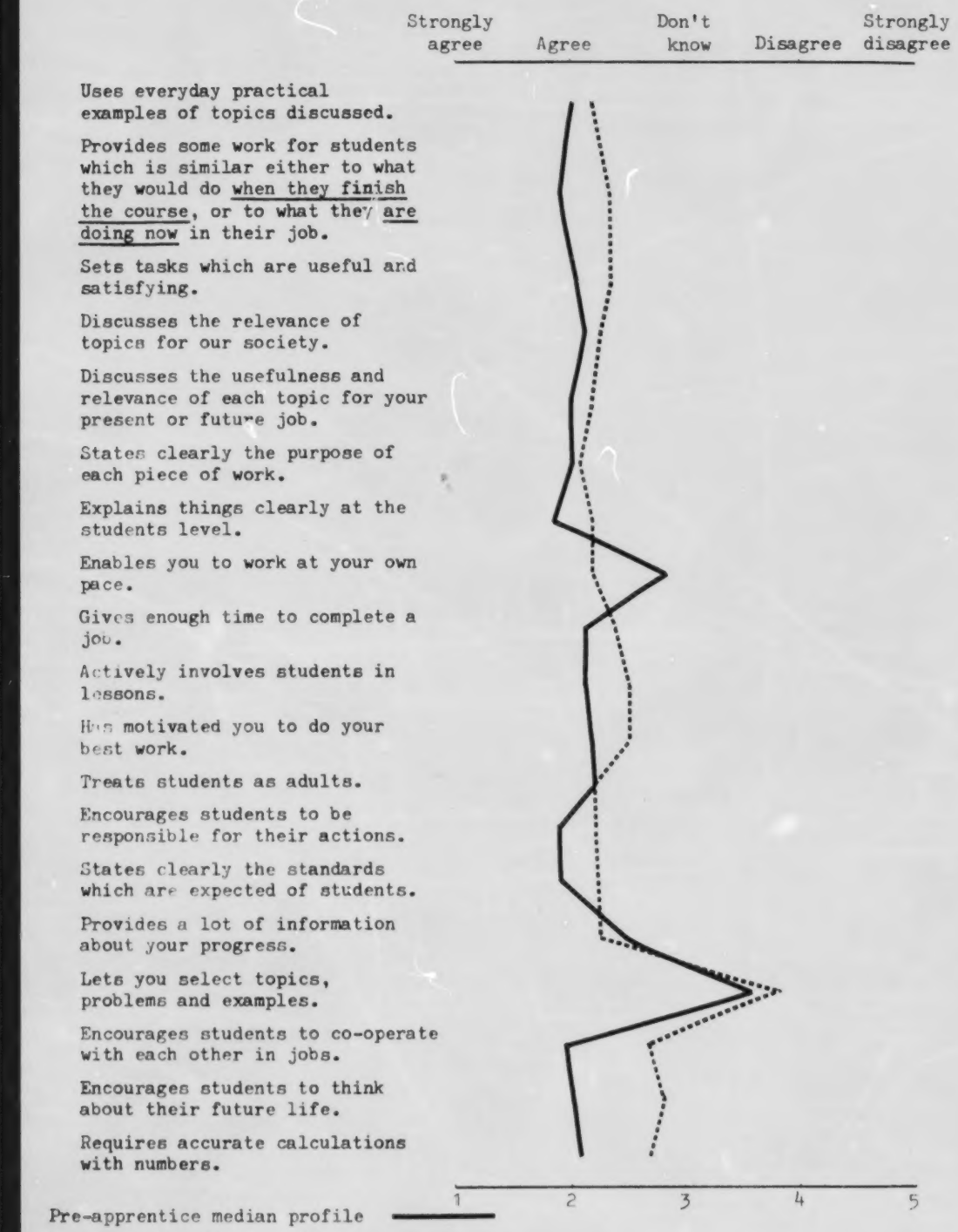
Teaching Processes Scale

Another item focused directly on teaching processes and the aim was to obtain reactions to the processes. The students were given a list of teaching practices and strategies which would possibly be employed in the pre-apprenticeship course. A sub-set of the items referred to teaching practices which should form part of the day release course also. The median scores were calculated and profiles were drawn (see below).

FIGURE 4 TEACHING PROCESSES SCALE

Median Rating Profiles - Pre-apprentice and Day Release samples, November, 1979.

Think of the teacher at your college who teaches you for most or all of your course. Indicate whether you agree or disagree with the following statements about him by circling the appropriate number opposite each item. Circle 1 if you agree strongly with the statement, and 5 if you disagree strongly. Otherwise circle 2 or 4 to show that you tend to agree or disagree, and circle 3 only if it is really impossible to decide.


Strongly agree
Agree
Don't know
Disagree
Strongly disagree
Uses everyday practical examples of topics discussed.
Provides some work for students which is similar either to what they would do when they finish the course, or to what they are doing now in their job.
Sets tasks which are useful and satisfying.
Discusses the relevance of topics for our society.
Discusses the usefulness and relevance of each topic for your present or future job.
States clearly the purpose of each piece of work.
Explains things clearly at the students level.
Enables you to work at your own pace.
Gives enough time to complete a job.
Actively involves students in lessons.
Has motivated you to do your best work.
Treats students as adults.
Encourages students to be responsible for their actions.
States clearly the standards which are expected of students.
Provides a lot of information about your progress.
Lets you select topics, problems and examples.
Encourages students to co-operate with each other in jobs.
Encourages students to think about their future life.
Requires accurate calculations with numbers.
1
2
3
4
5
Pre-apprentice median profile
Day release median profile

It is interesting to note that the pre-apprentice group profile is generally to the left of the day release median profile, indicating that the pre-apprentice group were more inclined to agree with the items. For example, a larger percentage of the pre-apprentice sample agreed that their typic l teacher "provides some work for students which is similar to what they would do in a job". The differences between the two groups were significant at less than the 0.01 level for this item using the Chi Square test of significance.

Table 20

TEACHING PROCESSES SCALE, NOVEMBER, 1979.

Item: The teacher provides some work for students which is similar either to what they would do when they finish the course, or to what they are doing now in their job.

SAMPLE / RESPONSE	Pre-apprentice sample N=54	Day release sample N=56
Strongly agree	24%	9%
Agree	60%	46%
Don't know	9%	18%
Disagree	6%	20%
Strongly disagree	1%	7%

Chi Square = 12.1790, p = 0.01

The pre-apprentice students tend to agree that the course is meeting one of its most important objectives of simulating their future work environment.

There were significant differences between the two groups (Chi Square test) on four variables which relate to what is generally agreed to be good teaching practice. A larger percentage of the pre-apprentice students agreed that their teacher "set tasks that were useful and satisfying" and that their teacher "actively involved students in lessons". The other two variables related to the teacher stating clearly the performance standards that were expected of students and encouraging the students to co-operate with each other while doing practical jobs in the workshop. Again the pre-apprentice students were more likely to agree that their teacher actually employed the desirable teaching strategies.

Thus a larger proportion of the pre-apprentice sample agreed that positive and desirable teaching practice took place in their course. They saw their course as relevant and interesting and as meeting some of its objectives. In contrast the day release sample was more inclined to be critical of its teachers and to say that nominated teaching strategies were not carried out. It should be noted that pre-apprenticeship teachers see their students for 4 or 5 days per week while the day release students see the teacher for only one day per week and that this may have allowed the pre-apprenticeship teacher more time to implement desirable teaching strategies and to establish rapport with his students.

Student Perceptions of Working Conditions - the working conditions scale.

The working conditions scale is based on a list of statements about working conditions. The statements set up a model of a very desirable type of job where the worker, for example, is responsible for his own work, works with up-to-date equipment and is treated as an adult. The respondents were asked to read the list of statements and compare their present working conditions in technical college with what they thought the working conditions were like for

(i) a student in a high school

and (ii) someone in full-time employment.

Responses will be discussed using the following sub-sections -

(1) Description and discussion of significant differences.

(2) Description and discussion of median values of responses.

(3) Further analysis using multiple analysis of variance and discriminant analysis.

(4) Readministration of the scale at Time Three.

(5) Summary.

The findings may be briefly summarised by saying that some statistically significant differences were observed between the samples and the overall impression is that the pre-apprentice sample took a more positive view on the likelihood of desirable working conditions being present at technical college and at work.

Discussion of significant differences

An interesting response was made to the item "being treated as an adult". The pre-apprentice sample tended to expect that they would be treated as an adult when they obtained a job, whereas the day release students thought that they were only sometimes being treated as an adult at work. The difference between the two groups is statistically significant well beyond the 0.01 level (Chi Square test).

Table 21

WORKING CONDITIONS SCALE: NOVEMBER, 1979.

Item: Being treated as an adult - at work.

SAMPLE / RESPONSE	Pre-apprentice N=48	Day release N=52
Often	79%	44%
Sometimes	21%	30%
Rarely	0%	19%
Never	0%	5%

Chi Square = 17.9418, p = 0.0001

Another item in which a statistically significant difference occurred was "feeling part of a team - in Technical college". The pre-apprentice students, compared to the day release students, said that this positive aspect of working conditions was present with greater frequency in Technical college (Se Table 22).

Table 22

WORKING CONDITIONS SCALE: NOVEMBER, 1979.

Item: Feeling part of a team - at Technical college.

SAMPLE / RESPONSE	Pre-apprentice N=54	Day release N=52
Often	46%	23%
Sometimes	42%	35%
Rarely	6%	27%
Never	6%	15%

Chi Square = 14.2875, p = 0.0008

On the next item of the scale the two samples responded in a similar fashion. This concerned feeling part of a team at work. Therefore both samples see teamwork as occurring at work while only the pre-apprentice students see it occurring with any frequency at college.

Another item referred to the usefulness of jobs and activities at college. The pre-apprentice students indicated that useful jobs and activities were often part of the Technical college environment while the day release students said that this was only sometimes the case. (Table 23 gives details).

Table 23

WORKING CONDITIONS SCALE, NOVEMBER, 1979.

Item: Jobs and activities are worthwhile and useful - in Technical College.

SAMPLE / RESPONSE	Pre-apprentice N=54	Day release N=53
Often	61%	30%
Sometimes	32%	47%
Rarely	7%	11%
Never	0%	12%

Chi Square = 11.4134, p = 0.0033

The day release group are able to compare jobs at work with jobs at college and it may be that college suffers by comparison with work.

Another possibility is that the pre-apprenticeship course may provide more worthwhile and useful jobs and activities than the day release course.

Having discussed the relevant significant differences between the sample groups it is useful to consider the median values of responses. The reader will note that Fig. 5 gives an overall impression of median ratings. Table 24 lists the median values for each item.

FIGURE 5 WORKING CONDITIONS SCALE

Median Ratings - Pre-apprentice and Day release samples, November, 1979. (Graphical representation)

Consider the following statements about typical working conditions. Compare your working conditions in Technical College with what you think the working conditions would be like for:

(i) a student in a high school, and

(ii) someone in full-time employment.
(Circle one number in each row).

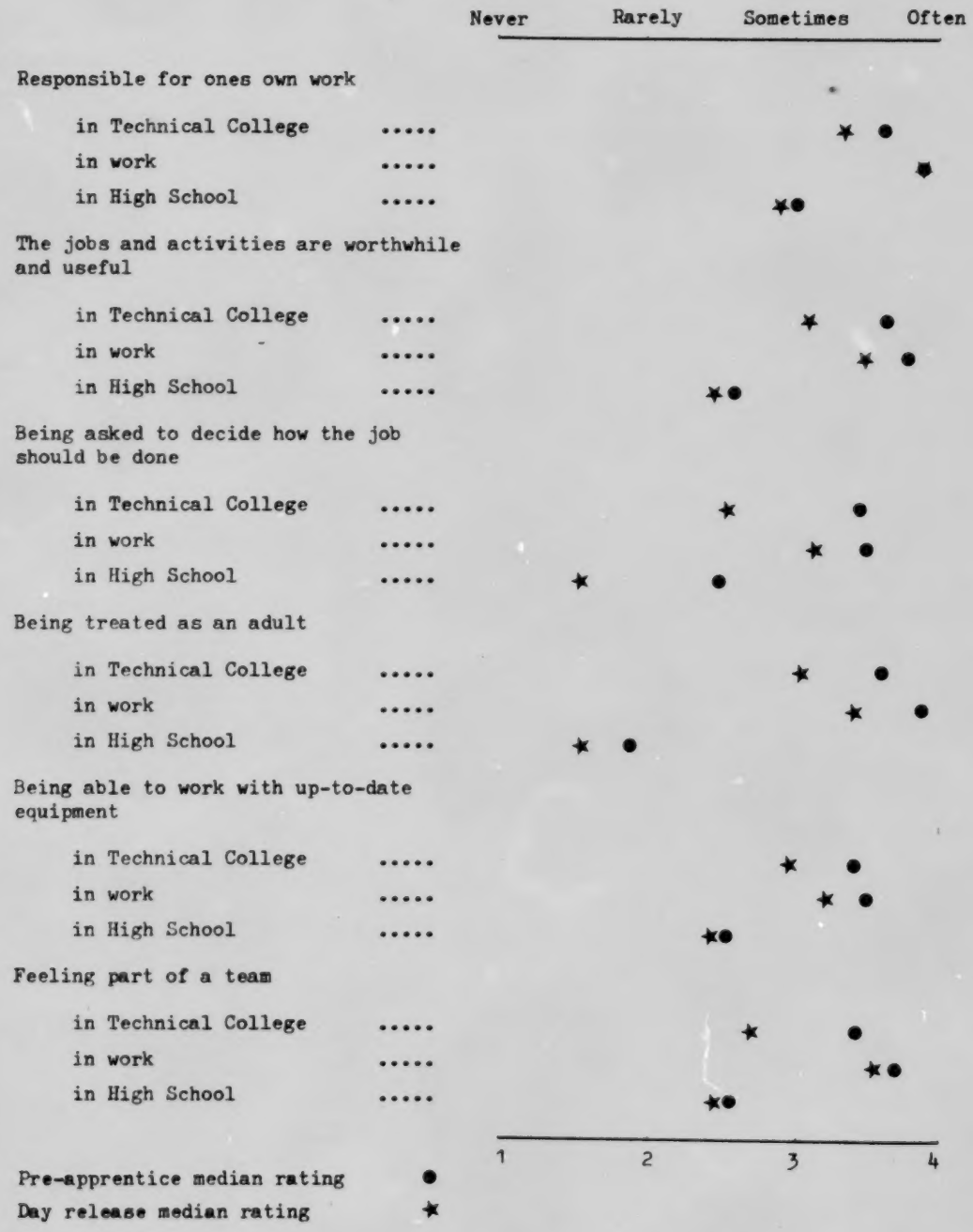


Table 24 WORKING CONDITIONS SCALE, NOVEMBER, 1979.

Median ratings - Pre-apprentice and Day release samples.

Consider the following statements about typical working conditions. Compare your working conditions in Technical College with what you think the working conditions would be like for:

(i) a student in a high school, and

(ii) someone in full-time employment.

(Circle one number in each row).

	Pre-apprentice median	Day Release median
Responsible for ones own work		
in Technical College	3.7	3.4
in work	3.9	3.9
in High School	3.0	2.9
The jobs and activities are worthwhile and useful		
in Technical College	3.7	3.1
in work	3.8	3.6
in High School	2.6	2.4
Being asked to decide how the job should be done		
in Technical College	3.4	2.7
in work	3.6	3.2
in High School	2.5	1.6
Being treated as an adult		
in Technical College	3.6	3.1
in work	3.9	3.3
in High School	1.9	1.5
Being able to work with up-to-date equipment		
in Technical College	3.4	3.0
in work	3.5	3.2
in High School	2.5	2.4
Feeling part of a team		
in Technical College	3.4	2.7
in work	3.7	3.5
in High School	2.5	2.4

Note: The response format was:

Item	Never	Rarely	Sometimes	Often
in Technical College	1	2	3	4
in work	1	2	3	4
in High School	1	2	3	4

Students were asked to select either 1, 2, 3 or 4.

When median values are compared it will be noted that the pre-apprentice median values are generally larger than the day release medians. A possible interpretation is that the pre-apprentice students see the ideal working conditions which have been listed as being frequently or at least sometimes present at college and in the world of work while the day release students are doubtful that these conditions actually occur to the same extent at college and at work. An important point is that while the day release students are at work four days per week and at college one day per week the pre-apprentice students are at college for five days per week and have no work experience. Thus it could be argued that the day release students are in a better position to realistically assess conditions in the work environment and that the pre-apprentice students could have a somewhat false impression of what work will be like.

A related point is that the pre-apprentice students may have an impression of work as an automotive mechanic as being varied and stimulating while the actual experience of the Stage I day release apprentices would often be of repetitive work at a low level of skill. Also, as first year apprentices they may encounter attitudes and practices from more experienced workers which would be more likely to engender a negative reaction than a positive reaction towards work.

Another point related to the effectiveness of the pre-apprenticeship course is that the pre-apprentice students see working conditions at college in a more positive light than the day release students. It could be that pre-apprentice teachers have more time to establish rapport with their students, to treat them as adults and to set up useful and worthwhile jobs and activities. This may give the pre-apprentice students a more positive orientation to attending college and taking part in the various course activities.

It is interesting to make the observation that the pre-apprentice and day release students saw these good working conditions as happening with the least frequency in High School. Since the items referred to conditions which may exist in the work environment but which are traditionally not part of the High School environment, this result was hardly surprising.

Further analysis of data obtained from the working conditions scale.

Two further forms of data analysis were applied - Multiple Analysis of Variance and Discriminant Analysis.

The former mode of analysis resulted in a printout of F values obtained for Univariate F-tests. This gave a significant F ratio on the item "Being treated as an adult - in Technical College". The information is tabulated below -

Table 25

WORKING CONDITIONS SCALE, NOVEMBER, 1979.

Means, standard deviation and F-ratios for the item "being treated as an adult - in technical college".

	Mean rating	Standard deviation	F-ratio	Significance
Pre-apprentice sample	3.48	0.72	7.4925	0.0074
Day release sample	2.98	1.01		

A larger proportion of the pre-apprentice sample responded that they "were often treated as an adult in technical college". This compared in an interesting way to the agreement of both samples that they were rarely or never treated as an adult at school. This finding is in the same direction as the other findings in which the pre-apprentice students take a more positive view of the working conditions they encounter at college.

Results of discriminant analysis

This was carried out on the variables corresponding to the items of the Working Conditions Scale. A table of standardised canonical discriminant function coefficients was obtained and analysed by the writer. It is considered that two themes may be drawn out of the data:

(a) being treated as an adult

and (b) feeling part of a team.

By examining the high positive loadings of two variables on theme (a) it could be argued that pre-apprentice students tend to agree that they will be treated as adults in their future experience of work. Further to this, by studying the high negative loadings of two variables on theme (b) it could be argued that the day release students experience the team-work feeling at work only "sometimes" and certainly not very frequently. Thus while the pre-apprentice sample is positive about theme (a) the day release sample is somewhat negative about theme (b).

Due to the nature of discriminant analysis the above statements must be regarded as tentative opinions only. As reported earlier, the pre-apprentice expectation of adult treatment in their future job is also supported by the contingency table analysis (Chi Square test). However, the tentative opinion above on theme (b) is in conflict with the previously reported finding that both groups agreed that "feeling part of a team" happens fairly frequently at work. Therefore while the tentative findings of the discriminant analysis are of interest they should be treated with caution and afforded less credibility than the previously reported findings.

Readministration of the working conditions scale to the pre-apprentice sample in September, 1980.

This scale was re-administered to the pre-apprentice sample as part of the follow-up mail questionnaire. A period of eleven months elapsed between the two administrations and 90% of the sample were working full time in a permanent job in September, 1980. Comparison may be made of the pre-apprentice sample responses after most of its members had obtained a job with their responses in 1979 when they were full-time students. Median ratings were calculated for each item and compared with the median ratings made in 1979. Many of the ratings were identical and what changes did occur between administrations were of small magnitude. It appears that there has been no significant change in attitudes between the two administrations, i.e. that the working conditions listed are still seen to occur by the pre-apprentice students at college, work and high school with approximately the same frequency and they have maintained their positive views.

Summary

The findings based on the data gathered from the working conditions scale have been reported and discussed. Some significant differences have been seen to exist between the samples and an overall impression is that the pre-apprentice sample took a more positive view on the likelihood and desirable working conditions being present at technical college and at work.

Findings arising from the Self-Concept Scale

The purpose of this scale was to obtain an indication of the estimation the student typically makes about himself/herself and his/her abilities. The scale was administered on two occasions to both samples:

(a) close to the beginning of the course

and (b) at the conclusion of the Pre-apprenticeship course (pre-apprentice students) and at the end of Stage I of the trade course (day release students).

The plan was to observe whether attendance in either the pre-apprenticeship course or Stage I of the day release course led to an increase in self concept score. Since one of the Pre-apprenticeship course objectives is to assist the student's personal development and to make him/her more confident about getting a job in the automotive industry it can be hypothesised that the pre-apprentice students would show a gain in self concept scores between the beginning and end of their course.

The scale was made up of twenty items which were in the form of statements. Each student was asked to say if each statement was true or false (in varying degrees) when applied to himself. (The scale is to be found in the Appendix as question 22, Time One questionnaire). It may be broken down into five subscales, each of which is designed to measure an aspect of self esteem. They may be described as:

Subscale (1) - the "self as student" aspect dealing with the individual's estimation of his/her performance as a student in technical college,

Subscale (2) - the "self as worker" aspect dealing with identity as a worker - someone who can find and keep a job,

Subscale (3) - the "physical self" aspect which involved an estimation of their physical attributes,

Subscale (4) - the "personal self" aspect dealing with personality attributes

and Subscale (5) - the "social self" aspect dealing with the individual's perception of his/her competence in social situations.

Findings will be discussed using the following headings -

(a) Scale and sub-scale means.

(b) Further data analysis - factor analysis.

(c) Summary of findings.

Scale and sub-scale means

Sample means obtained on the scale for each sample and at the two times of administration are tabulated below. It should be noted that the maximum possible score was 100 and the minimum possible score was 20 and that the higher the score, the higher is the measured self esteem of the student.

Table 26

SELF CONCEPT SCALE, APRIL AND NOVEMBER, 1979.

(Sample means and standard deviations)

	Pre-apprentice sample		Day release sample	
	Mean	Standard deviation	Mean	Standard deviation
Time 1 (April 79)	74.82	10.26	72.40	8.99
Time 2 (November 79)	73.96	9.03	71.15	9.54

It is apparent that the self concept scores for both the pre-apprentice and day release samples vary only slightly between April and November. It seems that the hypothesis of a significant gain in pre-apprentice sample mean score over time is not supported.

The difference between mean scores at Time 2 is of interest. A t-test was applied and a non-significant t-ratio was obtained. It can be concluded that both samples were similar on total self concept scores.

However, some statistically significant differences have been observed between the two samples on the "self as student" sub-scale which deals with the individual's estimation of his performance as a student in technical college. Means and standard deviations have been tabulated for sub-scale one in Table 27.

Table 27

SELF CONCEPT SCALE, SELF AS STUDENT SUB-SCALE: APRIL & NOVEMBER, 1979.

	Pre-apprentice sample		Day release sample	
	Mean	Standard deviation	Mean	Standard deviation
Time 1 PA "N" = 73 DR "N" = 60	14.45*	2.57	13.43*	2.89
Time 2 PA "N" = 55 DR "N" = 53	14.76x	2.67	13.90x	2.88

* Sample means significantly different, t-test, $t = 2.1512$, $p < 0.05$.

x Sample means not significantly different, t-test.

The largest difference in mean scores is between the two samples at Time 1. This difference is statistically significant using the t-test at less than the 0.05 level. The pre-apprentice students could be said to enter their course with more self confidence in the student role. However this difference between the two groups does not persist till Time 2 when the group means were found to be not significantly different. A small gain in mean scores occurred between Time One and Time Two in both samples. Therefore a case cannot be made for the Pre-apprenticeship course reinforcing or maintaining the observed higher level of "self confidence as a student" shown as an entering behaviour by the pre-apprentice students at Time 1. Nevertheless, one aspect of the "self as student subscale" did emerge as a contrasting feature of the groups. At both the April 1979 and November 1979 administration significantly more day release students said it was true that they "often don't understand what the teacher is trying to teach in theory lessons". (Refer to the table below).

Table 28

SELF CONCEPT SCALE ITEM: NOVEMBER, 1979.

Item: I often don't understand what the teacher is trying to teach in theory lessons.

SAMPLE / RESPONSE	Pre-apprentice sample N = 55	Day release sample N = 53
Completely false	24%	17%
Mostly false	49%	28%
Partly false and partly true	16%	36%
Mostly true	4%	13%
Completely true	7%	6%

Chi square = 8.6932, p = 0.03

This lack of confidence of the day release students in their ability to understand Theory could be attributed to a number of factors and my data do not throw any light on that question. In comparing the two groups it could be surmised that a relevant factor may be that the pre-apprentice students are selected by teachers for admission to the course whereas day release students undergo no selection process. The pre-apprentice group may therefore be selected on the basis of possessing a certain level of cognitive skills.

Further data analysis - Factor Analysis of the self concept Scale

Factor analysis was carried out on this data in order to try to identify the underlying factors in the student response pattern. Factor analysis is defined as "a method for determining the number and nature of the underlying variables among larger numbers of measures" by F. Kerlinger (5). In this case it informed me what items of the scale belonged together and thus possibly measure the same

underlying construct. The purpose of factor analysis is to attempt to identify these constructs or factors as they are commonly called.

The data analysis strategy followed was to use the items of the scale as variables and to use the SPSS program "Factor". This produced a Varimax Rotated Factor Matrix from which three factors were identifiable. They may be summarised as:

Factor One:

Performance in class in both theory lessons and practical work in the workshop. This factor also seems to have an element of the individual's reputation in class for being able to do theory and practical work in a proficient manner.

Factor Two:

A sociability factor related to a personality type which is friendly, calm, gregarious and gets on with most people but without "crawling". The picture is that of the Australian "good bloke" who is supposed to be friendly and unruffled, at least on the surface.

Factor Three:

Identity as a worker in the Automotive industry. The factor relates to ability to find and keep a job and to work well with tools in the automotive workshop.

These three factors have been nominated as factors by studying a rotated factor matrix. This was a rather subjective process but one that was the best estimate which could be made, given the nature of the data.

Of interest is the percentage of the total variance which is accounted for by each of the factors. This gives an indication of the relative importance of the factors in causing the observed variance. See Table 29 below.

Table 29

SELF CONCEPT SCALE

Eigenvalues and Variance percentages

Factor	EIGENVALUE	Percentage of Variance accounted for	Cumulative Percentage
1	3.2588	36.5	36.5
2	1.7771	19.9	56.4
3	1.1910	13.3	69.8
4	0.9600	10.8	80.5

It may be noted that Factor One (performance in class) accounted for the largest proportion of the total variance. This information should be looked at in conjunction with the factor scores of the two sample groups. Comparison of the factor scores enables one to judge whether the pre-apprentice and day release samples have responded in a significantly different manner with regard to the important underlying factor of "performance in class".

Table 30

SELF CONCEPT SCALE, NOVEMBER, 1979.

Factor One: Sample Factor scores and standard deviations.

	Pre-apprentice sample	Day release sample
Factor score	2.4363	2.3966
Standard deviation	1.1793	1.801

These factor scores are not significantly different and this indicates that although Factor One accounts for 36.5% of the variance it does not split the individual respondents into the two sample groups. In other words a case has not been made for the hypothesis that the pre-apprentice sample has a higher regard for itself in respect of performance in class. The group which has the higher degree of self esteem on this Factor is a mixed group of pre-apprentice and day release students.

Factor Two (sociability factor) accounted for 19.9% of the variance and the factor scores for the two sample groups are not significantly different. Therefore, the null hypothesis that there is no difference between patterns of responses of each group on this factor is supported.

Factor three (identity as an automotive worker) accounted for 13.3% of the variance and also failed to split the total student sample into the pre-apprentice and day release groups. It can be said that the two sample groups did not differ with respect to this third factor.

Summary of findings on the self concept scale

Three factors have been shown to underlie the 19 variables of the self concept scale. They are (1) performance in class
(2) a sociability factor
and (3) identity as an automotive worker.

Factor scores have been calculated and the two samples are known not to perform in a significantly different fashion on any of the three factors.

This finding appears to corroborate the earlier finding of no significant difference between the mean scale scores obtained in November, 1979. Looking at the full range of data and at all the data analysis techniques used it can be said

(a) The pre-apprentice and day release groups did not differ in level of self esteem at the beginning of their courses,

(b) The two groups made no significant gains in self esteem during their courses and

(c) The two groups did not differ in self esteem at the end of their course (pre-apprentice students) or the end of Stage I (day release students).

The Course Emphasis Scale

A list of five general objectives of pre-vocational courses was presented to the students and they were asked to give their perceptions of how much emphasis actually had been given and how much emphasis should have been given to the objectives. The aim was to study the discrepancies.

The general trend in the responses was that both the pre-apprentice group and the day release group thought the actual emphasis given to teaching of the objectives was less than the emphasis which should have been given. While this appears to be a criticism of the effectiveness of the course in meeting its stated objectives the size of the discrepancies indicates relatively mild criticism.

The findings are discussed under the following headings -

(a) Details of median emphasis ratings and discrepancies between ratings,
(b) Pre-apprentice students - comparison of actual and desired emphasis ratings,
(c) Day release students - comparison of actual and desired emphasis ratings,
(d) Comparison of pre-apprentice and day release student opinion on course emphasis,
and (e) Summary of findings.

Details of median emphasis ratings and discrepancies between ratings.

Table 31 below lists the objectives, the median emphasis ratings and the discrepancies between actual and desired emphasis ratings. The table allows one to compare the "actual" emphasis rating with the "desired" emphasis rating for each sample group and to further assist this comparison, Figs 6 and 7 below give graphical plots of the information.

Table 31 COURSE EMPHASIS SCALE, NOVEMBER, 1979.

Median ratings of major objectives of vocational education for Automotive Engineering students.

Objective		Actual emphasis	Desired emphasis	Discrepancy
1. Emphasis on skills, knowledge and techniques for the practice of a future job.	Pre-apprentice	1.5	1.3	0.2
	Day Release	2.1	1.4	0.7
2. Development of self-awareness and self-confidence and an understanding of other people.	Pre-apprentice	2.1	1.7	0.4
	Day Release	2.9	2.7	0.2
3. Development of attitudes which will assist you to settle into a job.	Pre-apprentice	1.9	1.6	0.3
	Day Release	2.9	2.3	0.6
4. The ability to read, write and use numbers.	Pre-apprentice	2.3	2.1	0.2
	Day Release	2.9	3.0	0.1
5. Learning about our society.	Pre-apprentice	2.8	2.4	0.4
	Day Release	4.5	3.8	0.7

Note: (a) 1 = A great deal of emphasis. (b) Pre-apprentice sample size = 53.
3 = Some emphasis. Day release sample size = 51.
5 = Little or no emphasis.

Pre-apprentice students - comparison of actual and desired emphasis

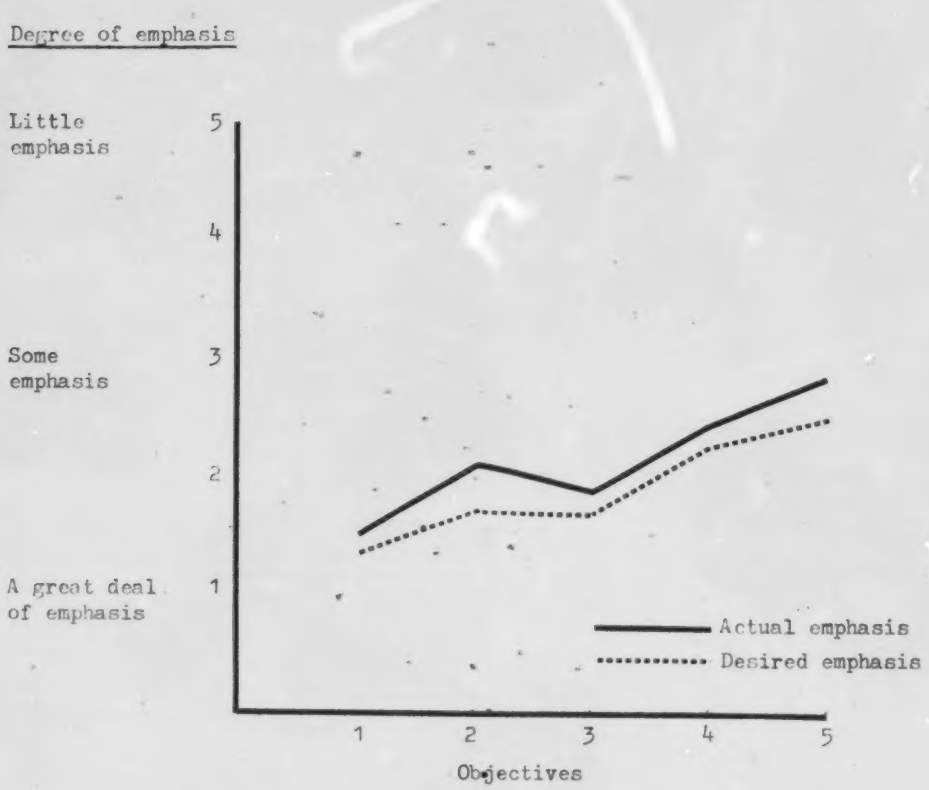


Figure 6: Course emphasis scale, November, 1979: Pre-apprenticeship students - Median emphasis ratings.

Note: The objectives 1-5 are

1. To teach skills and knowledge for the practice of a future job.
2. To develop self-awareness and self confidence.
3. To develop attitudes which will assist student settling into a job.
4. To develop ability to read, write and use numbers.
5. To learn about our society.

The pre-apprentice group thought that the most actual emphasis had been placed on the objective of "teaching skills, knowledge and techniques for the practice of a future job" and that the least actual emphasis had been placed on "learning about our society". This emphasis difference is quite understandable given that the course's major objective must always be to teach the knowledge and skills required to become an automotive engineering tradesman. It is interesting however to see that the pre-apprentice students would like to see slightly more emphasis placed on "learning about our society". If their experience of this part of the course had been mostly negative it would be expected that they would have rated the desired emphasis as very low.

The actual emphasis given to objective 2 was seen by the pre-apprentice group to be moderate. This objective is "to develop self-awareness and self-confidence and an understanding of other people". Two points are worthy of note here -

(1) the pre-apprentice students would like to see slightly more emphasis placed on this objective, and

(2) according to findings from the self concept scale, this objective has not been achieved in terms of development of self confidence by co rse teachers. Perhaps this is an area in which the course can be improved so as to meet the interests of the students for this type of personal development.

Day Release Students - comparison of actual and desired emphasis.

Table 31 provides the numerical data to allow this comparison and Fig. 7 below is a graphical plot of median ratings.

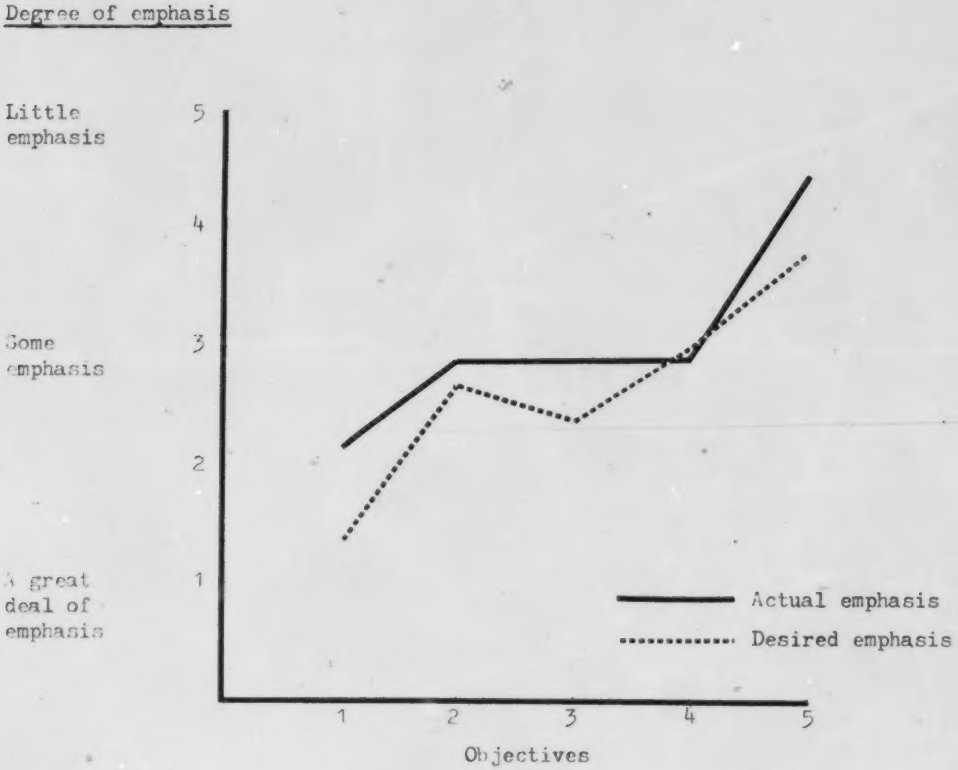


Figure 7: Course emphasis scale, November, 1979: Day release students - median emphasis ratings.

Note: The objectives 1-5 are

1. To teach skills and knowledge for the practice of a future job.
2. To develop self-awareness and self confidence.
3. To develop attitudes which will assist student settling into a job.
4. To develop ability to read, write and use numbers.
5. To learn about our society.

The day release students were of the opinion that the objective which received the most actual emphasis and also which should have received the most actual emphasis was "teaching skills, knowledge and techniques for the practice of a present job". They were also of the opinion that "learning about our society" had and should have the least emphasis.

The discrepancy between actual and desired emphasis on objective 3 is interesting in that it appears that the day release students would welcome more emphasis on "job assisting attitudes" being introduced into their course. It is possible that this pre-vocational course objective could be included in Stage I of the Day release course.

Comparison of Pre-apprentice and Day release opinion on course emphasis.

This comparison may be made by studying Table 31 and by referring to the two graphs below.

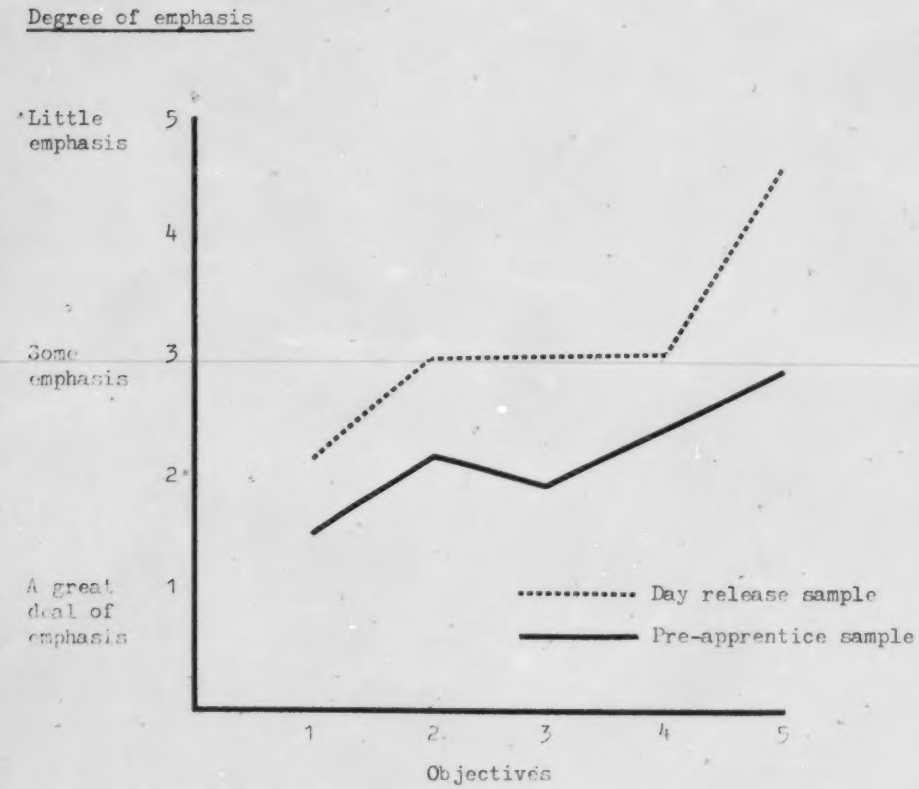


Figure 8: Course emphasis scale, November, 1979: Actual emphasis ratings - comparison of Pre-apprentice and Day release students.

Note: The objectives 1-5 are

1. To teach skills and knowledge for the practice of a future job.
2. To develop self-awareness and self confidence.
3. To develop attitudes which will assist student settling into a job.
4. To develop ability to read, write and use numbers.
5. To learn about our society.

It is important to note that three of the objectives which the students had to rate for actual and desired emphasis were typical of pre-vocational courses rather than vocational courses. Therefore the differences which may be observed by studying Fig. 8 on objectives 2, 3 and 5 are to be expected. However the fact that the day release students saw appreciably less emphasis being made on the "teaching of skills, knowledge and techniques for the practice of their present job" is rather surprising. The pattern of responses on this item is shown below:

Table 32

COURSE EMPHASIS SCALE, NOVEMBER, 1979 - ACTUAL EMPHASIS

Responses to item "how much emphasis has been given to skills, knowledge and techniques for the practice of a present or future job?"

SAMPLE / RESPONSE	Pre-apprentice sample N = 53	Day release sample N = 53
A great deal of emphasis.	53%	32%
Moderate emphasis.	30%	30%
Some emphasis.	15%	23%
Slight emphasis.	2%	11%
Little or no emphasis.	0%	4%

Chi square = 6.8613, p = 0.03

Taken at face value, this appears to be a statement of criticism of the day release course. Note from the graph below that the pre-apprentice and day release students agree that heavy emphasis should have been placed on the teaching of relevant skills and knowledge in their courses.

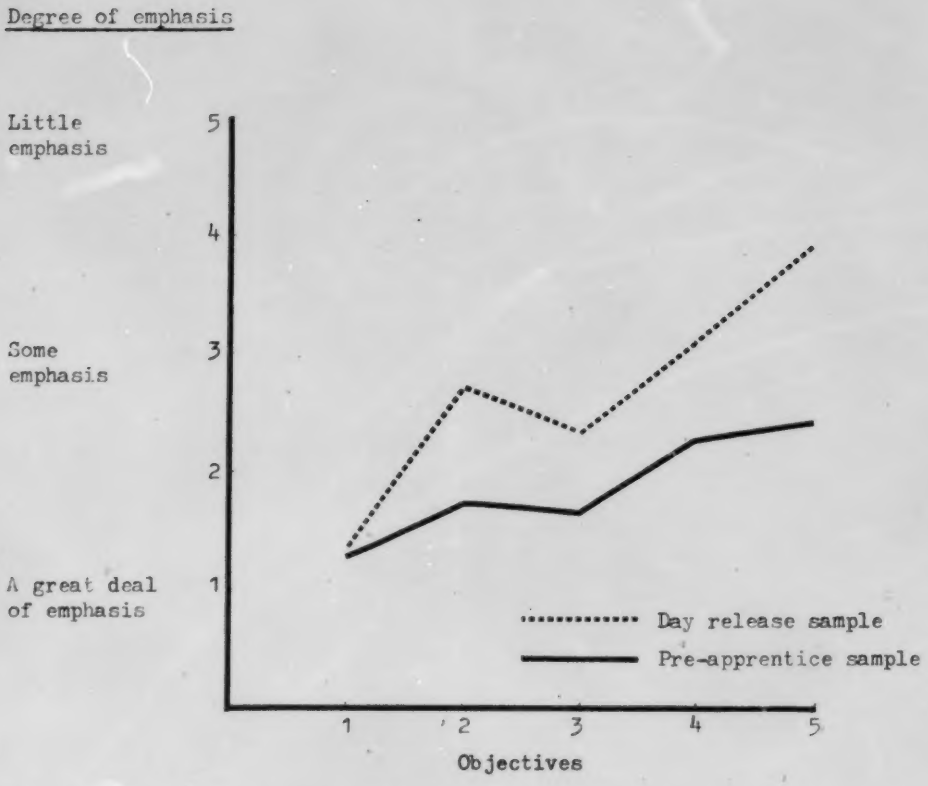


Figure 9: Course emphasis scale, November, 1979: Desired emphasis ratings - comparison of Pre-apprentice and Day release students.

Note: The objectives 1-5 are

1. To teach skills and knowledge for the practice of a future job.
2. To develop self-awareness and self confidence.
3. To develop attitudes which will assist student settling into a job.
4. To develop ability to read, write and use numbers.
5. To learn about our society.

The graph shows that a clear difference of opinion emerged between the desired emphasis ratings for objectives 2 to 5. Statistically significant differences occurred on each of these four objectives. When compared to the pre-apprentice group, the day release students feel that less emphasis is desirable. This is not to say that the day release students are completely disinterested in these objectives but simply rate them as less important.

The difference between the response patterns on objective 4 (the ability to read, write and use numbers) was signficantly below the 0.05 level (Chi square = 12.0228, p = 0.02). The day release sample see a need for some emphasis on literacy and numeracy while the pre-apprentice sample would prefer moderate emphasis on this area. This could reflect an aversion to "Trade Calculations type" work on the part of the day release students. Again, it could be that the pre-apprentice course teachers have been able to present literacy and numeracy material in a more meaningful or at least more palatable way to their students.

Course emphasis scale - summary of findings.

The general trend in the responses was that both the pre-apprentice group and the day release group thought the actual emphasis given to teaching of the general objectives was less than the emphasis which should have been given. Also both groups agreed that the objective which received the greatest amount of actual emphasis and which should have received the greatest amount of such emphasis was "teaching of skills, knowledge and techniques for the practice of a future job".

When the pre-apprentice sample was compared with the day release sample a number of differences were observed in the median ratings of both actual and desired emphasis. Possible reasons for some of these differences have been discussed above. It is worthwhile noting that both groups agreed that heavy emphasis should be placed on teaching skills and knowledge for the practice of a present or future job.

Retrospective Evaluation of Course - September, 1980.

The reader will recall that the design called for the follow-up of the pre-apprentice sample in the year following the completion of the Pre-apprenticeship course. This was done using the Time 3 Mail questionnaire which was administered in September, 1980, and which achieved a return rate of 73%. This included a question which asked the students to make a retrospective evaluation of their course with respect to some course objectives. Five of the objectives were the same objectives which formed the items of the Course emphasis scale of the Time 2 questionnaire.

Median ratings for each item have been calculated and a median rating profile has been drawn in Figure 10 below.

Figure 10

RETROSPECTIVE EVALUATION OF COURSE -
Pre-apprentice sample, September, 1980.

Median Rating Profile

How well did your pre-apprenticeship course prepare you for work?

It aimed to develop certain things and to help you in your change from school to work. Some of these course aims are listed below.

Please indicate by drawing a circle around one number in each row how well your course prepared you for getting and keeping a job.

	Very well	Well	Fair	Poor	Very poor
1. Taught the practical skills required to do my job.					
2. Taught the knowledge required to do my job.					
3. Developed self confidence and understanding of other people.					
4. Explained what attitudes help you to settle into a job.					
5. Developed basic skills of reading, writing and calculation.					
6. Gave me a general knowledge of society.					
7. Gave me experience of what work is like.					
8. Guided me on how to obtain a job.					
9. Gave me experience of working under pressure.					

Items one and two dealt with practical skills and theoretical knowledge. A large proportion of students thought that their course had prepared them well in these two important aspects. See below for the response pattern to item one.

Table 33

RETROSPECTIVE EVALUATION OF COURSE,
September, 1980.

Item: Preparation in terms of practical skills required to do my job.

SAMPLE / RESPONSE	Pre-apprentice sample N = 44
Very well	21%
Well	50%
Fair	25%
Poor	2%
Very poor	2%

At the time of making these responses, 78% of the pre-apprentice students had a job in the automotive engineering industry (most were apprenticed). Most students had a good basis therefore on which to make a judgment of the effectiveness of the Pre-apprenticeship course.

When reference is made back to the course emphasis scale data it may be seen that the pre-apprentice sample believed that more than moderate emphasis had been placed on this objective. The pre-apprentice sample therefore see appropriate emphasis being placed on teaching of theory and practical and believe that it has been effective in preparing them for their jobs.

The median ratings for items 1 & 2 would seem to indicate that the majority of the students are basically satisfied that those objectives have been met.

The responses to items 5 and 6 indicate that some of the students perceive the course to have been effective in meeting these aims. While giving students "a general knowledge of society" is not a major course aim it may well be advisable for more attention to be given to methods of teaching it. It should be remembered that the desired emphasis on this objective by the pre-apprentice sample was "moderate to some emphasis" and therefore it appears that the students are interested in learning about society.

Pre-vocational courses such as this have tried to give students experience of the world of work and to simulate the work environment to the greatest extent possible. The median response to item 7 indicates that the pre-apprentice sample was largely satisfied that the course prepared them well in this respect.

The automotive Pre-apprenticeship course seems also to have been of help to some of the sample in giving guidance as to how to obtain a job. The response pattern is as shown below.

Table 34

RETROSPECTIVE COURSE EVALUATION - Pre-apprentice sample, September, 1980.

Item: How well did the course prepare you? - guidance on how to obtain a job.

RESPONSE / SAMPLE	Pre-apprentice group N = 44
Very well	28%
Well	43%
Fair	18%
Poor	9%
Very poor	2%

Summary comment

The results of administration of this scale give a favourable overall impression of the course in that students seem generally satisfied with the outcomes of attendance. The two areas in which the course was seen by the students as less effective were

(1) Development of basic skills of reading, writing and calculation

and (2) the provision of a general knowledge of society.

Satisfaction Item

In the Time 2 questionnaire the two samples were asked to answer the question "what is your overall evaluation of your course?" More pre-apprentice students than day release students were "very satisfied" with their course. The table below gives the response patterns.

Table 35

OVERALL COURSE EVALUATION: NOVEMBER, 1979.

SAMPLE / RESPONSE	Pre-apprentice sample N=55	Day release sample N=56
Very satisfied	42%	11%
Satisfied	45%	59%
Uncertain	11%	23%
Dissatisfied	2%	5%
Very dissatisfied	0%	2%

Chi square = 15.2278, p = 0.0005

Table 35 also shows that more day release students were uncertain of the evaluation to make of their course. Perhaps this is because they are only one third of the way through the three-stage Automotive Trade course and some students feel it is premature to actually make an evaluation of the course.

Discussion of findings from the satisfaction item.

It would appear that the pre-apprentice students felt deeper satisfaction with their course than did the day release students. This trend however only has some real meaning when compared with trends observed and reported on in other questionnaire items.

For example in the preceding section of this report the positive retrospective evaluation of the Pre-apprenticeship course was reported on. Thus it could be argued that the pre-apprentice students have remained satisfied with their course after a period of experience in the world of work. The ability to be able to make this type of comparison is one of the advantages of the longitudinal study and the persistency of this positive evaluation by the students is a cogent argument for the effectiveness of the course in meeting their needs.

It has already been reported that the pre-apprentice students see working conditions at technical college in a more positive light than do the day release students. This finding is in line with the greater satisfaction in their course expressed by the pre-apprentice group.

It is possible to say that the stated greater degree of satisfaction of the pre-apprentice group was apparently reflected in their responses to other questionnaire items. The pre-apprentice students seem to have liked their course more than the day release students liked theirs.

Non-reporting of some Time Two data.

Data from questions two, four and six (Time Two questionnaire) are not reported on because they did not add to information which was obtainable from responses to other associated questions.

The "Problems" Scale - item seven, Time Two Questionnaire.

No point would be served in reporting data from this item because data analysis has shown that many students did not understand the question nd therefore the item did not function in the way it was intended to. The major problem was that students who said they usually had no difficulties in a specific area selected either 1, 2 or 3 in the "help" items.

Findings arising from Test Data

As explained in the earlier section on evaluation study design, two tests were administered to both samples.

The ACER Mechanical Reasoning test was used to measure mechanical aptitude and was administered in April, 1979. The results appear below.

Table 36

MECHANICAL REASONING TEST;
April 1979. Test Data.

Sample	Mean Score	Standard Deviation
Pre-apprenticeship N = 55	15.74	4.08
Day Release N = 52	15.60	3.87

The distribution of scores indicates that the pre-apprentice and day release samples are similar in level of mechanical aptitude.

The mean scores were compared with percentile norms supplied by ACER based on a large sample of Telecom Australia apprenticeship applicants (tested 1977). 62% of the New South Wales Telecom apprenticeship applicants scored below the raw score of 16. It can therefore be said that on average our pre-apprentice and day release students performed better than 62% of the Telecom apprenticeship applicants.

Performance on the Automotive Engineering Achievement Test.

The purpose and method of construction of this test has been described earlier in the Design and Methodology section. The reader will recall that it was planned to administer it as a pre-test/post-test instrument to both samples in April, 1979 and November, 1979. Since the test was designed to measure the student learning achievement in the theoretical material taught in Stage I of the day release course (or in approximately the first semester of the pre-apprenticeship course) it was hypothesised that n gain in mean scores would be made by both samples between the April and November administration of the test. The findings are tabulated below in Tables 37, 38 and 39 and contain a major surprise.

Table 37

AUTOMOTIVE ACHIEVEMENT TEST;
April, 1979.

Means and Standard deviations.

Sample	Maximum Possible Score	Mean Score	Standard Deviation
Pre-apprenticeship N = 55	25	11.85	2.89
Day release N = 52	25	10.56	3.81

t-test applied : sample means not significantly different at the 0.05 level.

Table 38

AUTOMOTIVE ACHIEVEMENT TEST;
November, 1979.

Means and Standard deviations.

Sample	Maximum Possible Score	Mean Score	Standard Deviation
Pre-apprentice N = 48	25	14.58	3.13
Day release N = 44	25	11.02	3.89

t-test applied, t ratio = 5.0857, $p < 0.01$

Table 39

AUTOMOTIVE ACHIEVEMENT TEST;
April and November, 1979.

Comparison of mean scores between April and November.

Sample	Maximum Possible Score	Means - April 1979	*Means - November 1979
Pre-Apprentice	25	11.85	14.58
Day Release	25	10.56	11.02

* Means significantly different at less than the 0.01 level (t - test).

Though the April mean score for the pre-apprentice sample is higher than for the day release sample the difference between these means is not statistically significant (t - test). However the November mean scores are significantly different (t - test) and indicate a markedly higher perf rmance by the pre-apprentice students. The gain by pre-apprentice students was expected as they all would have been taught the Stage I theory work by the end of Semester T However, the lack of any significant gain in achievement test scores by the day release students was not expected.

Discussion of test results.

The pre-apprentice and day release samples commence their course with equal levels of "mechanical reasoning" ability. However, the pre-apprentice sample has achieved more in terms of the cognitive objectives of the course - their grasp of automotive engineering "trade" theory is stronger.

Although the non-gain by the day release students from April 1979 to November 1979 seems anomalous, it may be that they have simply maintained their performance on what was a fairly difficult test. (Note the test has a Kuder-Richardson reliability of 0.62 which is satisfactory for its use in this evaluation study).

Another explanation of the better performance of the pre-apprentice students could be that since they have covered Stage I and Stage II theory by November and the test measured only Stage I theory they have reinforced and extended their knowledge of the Stage I content and are thereby enabled to perform better. In retrospect, it would have been preferable to test them in mid-year and to test the day release students in November and then to compare test performance.

In summary, it can be said that the pre-apprentice students have made a gain in cognitive achievement which was not matched by the day release students. While some explanation may be attempted, it is very likely that largely unknown factors are operating to produce the effects observed.

Findings concerned with Course Outcomes

This questionnaire had the objective of surveying outcomes of attendance in the course and was administered by mail to the pre-apprentice sample in August to October, 1980. The major objective behind the use of this mail questionnaire was to determine the rate of subsequent employment of the pre-apprentice sample and in particular, to see how many of those who obtained jobs were apprenticed in the automotive engineering industry. Other areas of interest were:

(1) What type of job was obtained?

(2) What was the average length of unemployment between completing the course and starting in a job?

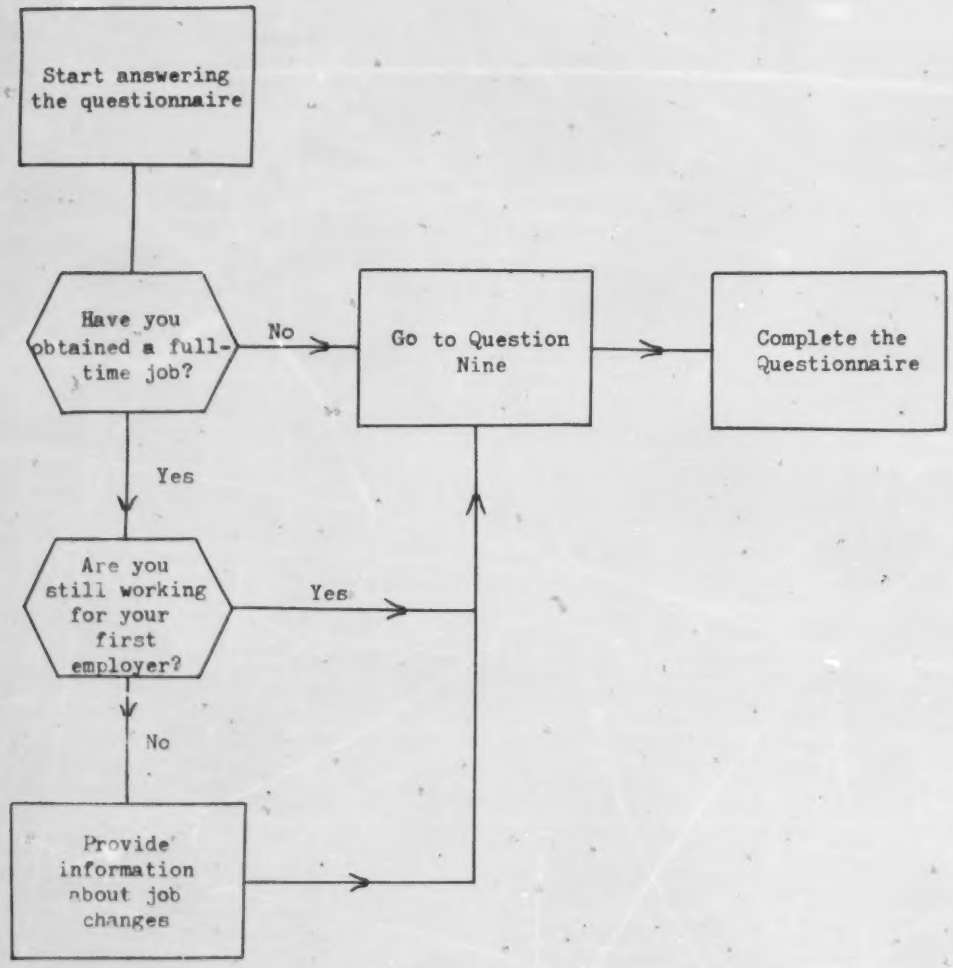
(3) How many students changed jobs between obtaining one and the time of questionnaire administration?

The Time Three questionnaire was based on the Ainley and Fordham Career questionnaire. There were a number of different ways of responding to the questionnaire depending on the employment status of the student and whether he had changed jobs or not. Figure 11 shows its structure and indicates how students were routed through the questions presented.

The reader will appreciate from a study of Figure 11 that students in different employment situations completed different sub-sets of the questionnaire items.

Figure 11

FLOW CHART ILLUSTRATING THE METHOD OF ANSWERING THE TIME THREE QUESTIONNAIRE



Method of Reporting the Data.

This will be done using four "question headings":

(1) What was the employment rate of the pre-apprentice sample in August to October, 1980?

(2) How many of the pre-apprentice sample actually obtained apprenticeships?

(3) What type of jobs were obtained?

and (4) How stable were the employment histories of the students up till August - October, 1980?

Response Rate obtained.

As reported above, an initial mailing and two follow-up letters were used to maximise the response rate. The rate obtained was 73%. It was not possible to follow up the non-respondents.

Employment Rate of Pre-apprentice Students.

96% of the students who responded had obtained a job since finishing their Pre-apprenticeship course in November, 1980. The small rate of unemployment (4%) is equivalent to two students only. Of course it is possible that unemployed former students of the course may be among the non-respondents. However, the general trend seems to be that the students did obtain full-time employment.

Question Nine asked the former students to describe their job (or lack of it) in general terms. The responses appear in Table 40.

Table 40

RESPONSES TO "Which of the following statements best describes your present job?"

(Pre-apprentice sample, September, 1980).

Statement	Percentage response N = 45
Working full-time in a permanent job	89%
Working full-time in a temporary job	4%
Working part-time	2%
Not employed, looking for work	4%
Not employed, not looking for work	0%
Home duties	0%
Full-time study	0%

By far the largest proportion of people who were employed were working full-time in a permanent job. It is possible that the students who were then working in a temporary or part-time job may by now have obtained full-time jobs.

A survey of employers may enable an estimation to be made of the extent to which this very satisfactory employment rate has been caused by an effective and useful Pre-apprenticeship course. However, whatever the causes, the employment outcomes were probably very satisfying to the students concerned and may be an indication of course effectiveness.

Length of Unemployment

Question 13 gave information on the length of time students were unemployed before obtaining their first job. Details are given below.

Table 41

RESPONSES TO "How long did it take you to find a full-time job after you finished your Automotive Pre-apprenticeship course last year?"

(Pre-apprentice sample, September, 1980)

	Percentage Response N = 45
Less than 1 month	33%
Between 1 and 3 months	35%
Between 4 and 6 months	6%
More than 6 months	0%
Does not apply - I found a job before I finished the course	22%
Does not apply - I still haven't got a full-time job	4%

Of those who experienced a period of unemployment, 68% had obtained a job within three months. Thus the average period of unemployment for these young people was quite short.

What was your First Full-time Job?

71% of the employed students said that their first job was as a motor mechanic. Other "first jobs" which former pre-apprentice students had taken included fitter and machinist, driveway attendant at a service station, farm hand, factory hand and welder. Some of these students subsequently changed their jobs to move into the automotive engineering industry.

Outcomes of the Course in Terms of Gaining Apprenticeships.

The former pre-apprentice students were asked "what type of job is your present job?" 69% of the sample who responded had obtained an apprent ceship as an automotive mechanic. (A later question sought information on whether the former students were working on motor cars, trucks, etc.). Therefore approximately seven out of ten pre-apprentice students in this sample proceeded to Stage III of the Automotive Engineering Trade Course.

Some former students obtained apprenticeships in other trade areas. If all the students who were apprenticed into a trade are added together, the overall rate of apprenticeship is 75%.

Table 42 below gives details of the types of jobs obtained:

Table 42

RESPONSES TO "What type of job is your present job?"

(Pre-apprentice sample, September, 1980).

	Percentage Response (N = 45)
An apprenticeship as an automotive mechanic	69%
An apprenticeship in a trade area related to Automotive Engineering	4%
A non-apprenticed job in the automotive industry	4%
An apprenticeship in a trade area not related to Automotive Engineering	2%
A non-apprenticed job in a trade area not related to Automotive Engineering	4%
A job in a non-trade area	10%
I don't have a job	4%

Other information which can be gleaned from this table is:

(1) The percentage of the sample working in the automotive industry was 77%.

(2) The total percentage of people working in non-apprenticed jobs in "trade" areas was 8%.

(3) 10% of former students were working in a non-trade area.

(4) Of those students who were not employed in the automotive industry, 83% had a job.

A complete list of the jobs held by students not employed in the automotive industry is -

Fitter and Machinist
Welder
Wood-turner
Road line marker with the Department of Main Roads
Factory hand
Storeman
Employee in the ski retail business
Pastry cook
Bank officer

Type of Job Obtained - details of automotive engineering apprenticeships.

Students who had obtained an apprenticeship were asked to indicate the type of firm they worked for. Table 43 gives the answers.

Table 43

RESPONSES TO "What type of firm do you work for?"

(Pre-apprentice sample, September, 1980).

	Percentage Response N = 45
Car dealership	49%
Service station or general workshop	21%
Automotive specialist (brake specialist, engine tuner, etc.)	12%
Truck repair firm	9%
Plant equipment firm	6%
Motorcycle repair firm	0%
Other	3%

The large proportion who work in car dealerships probably is a consequence of better apprenticeship opportunities with those firms.

One student fitted into the "other type of firms" category. He was a mechanic in a Government department.

Main Duties of the Job held.

Since this was an open-ended question the method of analysis used was to separately list the whole range of duties reported for each of the 1(a) categories and then to summarise that information.

Car dealership apprentices.

The former pre-apprentice students working in this type of firm listed the following duties most frequently:

Major jobs - repair clutch
- repair brakes
- repair gear-box
- engine overhaul

Engine tuning

Oil changing and greasing

Warranty work on new cars

Installation of air conditioning

I am informed that this work would most likely be specialist in nature due to the fact that it would be carried out on one or two types of car only.

Service station or general workshop apprentices.

There was a greater tendency here to report "general" repair work on a wider range of brands of car. Duties reported again included -

Major jobs - repair clutch
- repair brakes
- repair gearbox

Engine tuning

Oil changing and greasing

Duties reported only in this category included ordering of spare parts, fitting tyres and wheel alignment.

Other types of firms.

The students working for automotive specialists worked in a number of areas - automatic transmissions, engine tuning and braking systems. Duties reportedly carried out in Truck repair firms and Plant equipment firms included:

Equipment and vehicle servicing

Major repairs

Warranty repairs

Fault diagnosis

Job Stability of Former Pre-apprentice Students.

In September, 1980, 65% of the former pre-apprentice students were still working for their first employer. Fifteen students had changed their jobs in that period. Of the fifteen, one had had three jobs and the remainder had had two jobs. The majority of students who actually changed their jobs did so once only in the period from late 1979 to September 1980.

Reasons for Making Occupational Changes.

Students were asked to say if they had changed jobs so that they could move into or out of the automotive engineering industry. Responses appear below:

Table 44

RESPONSES TO "Have you changed jobs to get an apprenticeship in the automotive engineering trade area?"

(Pre-apprentice sample, September, 1980)

	Percentage Response N = 15
Yes	33%
No	67%

Table 45

RESPONSES TO "Have you changed jobs to move out of the automotive engineering trade area?"

(Pre-apprentice sample, September, 1980)

	Percentage Response N = 15
Yes	13%
No	87%

In effect, five students moved into the automotive area while two moved out of it.

Relative Importance of Reasons for Making Occupational Changes.

Question 8 asked students to consider their most recent change of employment and to read a supplied list of reasons for changing their job. They were asked to rate the importance of each reason in their own decision to change occupation.

Figure 12 contains a profile of median responses to each item. It indicates that the two reasons which were most frequently thought to be important were -

(a) "I obtained an apprenticeship in the automotive engineering field", and

(b) "I wanted to follow a new interest".

FIGURE 12 (a) Profile of median ratings of importance of reasons for occupational change.

(b) Frequency of "important - very important" responses to each item.

(Pre-apprentice sample, September, 1980)

Consider your most recent change of employment (it may have been your only change of employment).

How important were the following reasons for your most recent change? Please indicate by circling the appropriate number, how important each of these reasons was in your decision.

	Very important	Important	Slightly important	Unimportant	Not at all important	* Column 6
I obtained an apprenticeship in the automotive engineering field						7
A job with better pay arose						3
Obtained a job outside the automotive industry						1
Changed from part-time to full-time work outside the automotive industry						1
The people I worked with were unfriendly						3
Unpleasant working conditions						4
Job was boring and uninteresting						3
The boss was not fair and square						4
I was dismissed (the firm closed)						3
I was retrenched						2
I was dismissed (other reasons)						1
Wanted to do more useful work						5
Wanted to follow a new interest						6
Lack of encouragement from family members						1

Column 6 (marked with an *) gives the sum of the frequencies of "important" and "very important" responses for each item. An examination of this column shows that -

(a) Some students encountered unpleasant working conditions and unfair bosses,

(b) Five students sought more useful work by changing jobs, and

(c) Six students were either dismissed or retrenched.

Reporting of Data arising from Questions 14 and 15, Time 3 Questionnaire.

This was done under the major heading of "findings concerned with teaching processes", sub headings "findings about perceptions of working conditions" and "retrospective evaluation of course" respectively.

Student Suggestions for Improving the Course.

A large proportion of the sample responded to question 16 which asked if the students had any suggestions for improving the way the pre-apprenticeship course prepared people for work. Responses have been analysed and divided into comments about course content and comments about teaching method.

Course content.

The most common comment was that more time should be spent on practical work in the workshop. Students would like more "hands on" experience in general repairs and diagnosis of mechanical faults.

Two students suggested that a period of work experience in the automotive industry should be an obligatory part of course content. This would give the students early experience of the sort of demands which will be placed on them in the workplace.

Teaching method.

With respect to teaching method, one suggestion was that practical jobs and training should be more closely coordinated with theory teaching. Another suggestion was that fewer people be required to work on the one practical job so that easier access may be had to available equipment and tools.

A persistent comment was that students should be put under more "time pressure" in the college work shop. A number of students said that when they commenced work they were surprised at how much faster they had to work to fit in with the need to complete jobs in prescribed times.

Overall, the tone of the comments made about the course were positive and some students said they were really pleased that they had had the opportunity to attend the course.

GENERAL DISCUSSION OF FINDINGS - ASPECTS OF PRE-APPRENTICESHIP COURSE EFFECTIVENESS

A high proportion of the pre-apprentice sample had obtained employment by September of the year following the completion of the Pre-apprenticeship course. 72% of the students who were employed had a job as an Automotive Mechanic and would have been enrolled in Stage III of the Automotive Engineering Trade course. Therefore it can be said that obtaining a job is a positive outcome of course attendance for most of the pre-apprenticeship students. As discussed above, this high employment rate may well be an indicator of course effectiveness.

When compared with the day release sample the pre-apprentice students are more satisfied with, and appreciative of, their course. This is particularly noticeable in their attitudes to working conditions at technical college and to teaching methods employed by their teachers. Most of the pre-apprentice students see their course as relevant and interesting and two students actually went so far as to say in writing that they were pleased they had had the opportunity to attend. Satisfied "customers" are usually the mark of an effective course.

It would appear from the data that the pre-apprentice students are, for the most part, in a course which matches with their job aspirations. This would be a factor in student satisfaction with the course.

The pre-apprentice students' perceptions of their future working conditions in November, 1979 and of their actual working conditions in September, 1980, were virtually the same. In other words, the students had an accurate picture of what their future working conditions would be like. This outcome would be partly the result of course attendance since one of the pre-apprenticeship course objectives is to simulate the future job and working conditions which the students will have.

One of the free response comments from students was that a short period of "work experience" as an Automotive Mechanic would be desirable. This would probably add to the accuracy of perceptions of what the world of work would be like.

Data obtained from the retrospective course evaluation scale gives the overall impression that students were quite satisfied that the course had succeeded in its objectives. A large proportion of students thought that their course had prepared them well in terms of teaching practical skills and theoretical knowledge. Thus the students considered the course to have been effective.

Both the pre-apprentice and the day release students thought that the actual emphasis given by teachers to five general course objectives was somewhat less than the emphasis which should have been given. However the discrepancies reported by the pre-apprentice students were quite small and really amounted to very mild criticism. The day release students on the contrary were quite critical of the actual emphasis placed on the teaching of "skills, knowledge and techniques for the practice of their present job." Since this would normally be the major objective for the day release course, this criticism gives some cause for concern. Again, the pre-apprentice students appear to be much more satisfied with their course than the day release students.

Neither the pre-apprentice sample nor the day release sample made a significant gain in self-confidence (or self-esteem) between April, 1979 and November, 1979. This indicates that the pre-apprenticeship course objectives of "development of self-awareness and self-confidence and an understanding of other people" has not been fully achieved. Given that the pre-apprentice students said they would like some greater emphasis placed on this objective during their course it seems appropriate for some research and development work to be carried out on improving the teaching of the "self-confidence" objective.

The markedly better performance by the pre-apprentice sample versus the day release sample in the cognitive achievement test in November, 1979, has been reported and fully discussed in the body of this report. With hindsight, it would have been better to have tested the pre-apprentice students at a point in time equivalent to the end of Stage One of the Day Release course rather than at the end of the Pre-apprenticeship course. This would have allowed for more meaningful comparisons to be made between the achievement test scores.

To conclude, it appears that many of the pre-apprentice students have been benefited by their attendance in the course. A large proportion of them obtain jobs after the course and these jobs seem to be generally of the type to which they aspire.

SUMMARY OF FINDINGS

Findings concerned with Student Background Factors.

Age and sex composition of the samples.

The age distributions of the pre-apprentice and day release samples were very similar. The pre-apprentice and day release median ages were 16.6 years. Both samples were made up entirely of males.

Calendar year of leaving school.

The day release course is more likely to include students who have been out of school for one year or more. It is possible that some of these students may have had work experience before becoming an automotive apprentice.

Other background information.

* A larger proportion of the day release sample had worked full-time for more than six months since leaving school and before commencing their course.

* Both pre-apprentice and day release students had a strong interest in attending a technical college at the point of leaving school.

* 82% of all the students (samples combined) said that their course matched with the job they most wanted to have (i.e. automotive mechanic).

Findings concerned with Teaching Processes.

Teaching practice.

Of the two samples, the pre-apprentice students were more likely to say that beneficial and desirable teaching methods and strategies were used by the teachers in their course.

Emphasis given to course objectives.

The general trend in the responses was that both the pre-apprentice group and the day release group thought the actual emphasis given to teaching of the general objectives was slightly less than the emphasis which should have been given. Also both groups agreed that the objective which received the greatest amount of actual emphasis and which should have received the greatest amount of such emphasis was "teaching of skills, knowledge and techniques for the practice of a future job".

Retrospective judgment of course effectiveness.

Pre-apprentice students were asked to make a judgment about course effectiveness ten months after completion of the course. They believed that the course had been effective in teaching them the practical skills and theoretical knowledge required for their jobs. The course had also been of help to some of the sample in giving them guidance as to how to obtain a job.

Two areas in which the course was seen as less effective were

(a) the development of the basic skills of reading, writing and calculation

and

(b) the provision of a general knowledge of society.

Student perceptions of working conditions.

In November, 1979, pre-apprentice and day release students were asked to compare their working conditions in Technical college with what they thought the working conditions would be like for

(a) a student in a high school

and

(b) someone in full-time employment.

The pre-apprentice students said that they experienced good working conditions at college and at work quite frequently whereas the day release students thought that good working conditions were present at college and at work with a lesser frequency. The attitude expressed by the pre-apprentice students persisted till September, 1980, when most of them were actually working.

Measurement of self-esteem.

One of the stated objectives of the pre-apprentice course is to aid in the development of self-esteem and self-confidence. The findings showed that the pre-apprentice sample did not gain in self-esteem over the time of running of the course.

Satisfaction with course.

The pre-apprentice students expressed greater general satisfaction with their course than did the day release students.

Findings arising from Test Data.

The two tests used were the ACER Mechanical Reasoning test and an Automotive Engineering theory achievement test.

The pre-apprentice and day release samples were similar in level of mechanical aptitude. However the theory test showed that the pre-apprentice students improved their grasp of theory (as measured by the test) between April and November while the day release students did not improve in this regard.

Findings concerned with Course Outcomes.

The response rate obtained to the questionnaire which surveyed course outcomes was 73%. (This questionnaire was sent to all former pre-apprentice students).

Important course outcomes may be summarised briefly as

(1) 96% of the respondents obtained a job,

(2) 89% of the respondents were working full-time in a permanent job,

(3) 77% of respondents were working in the Automotive industry,

(4) 69% of respondents were working as an apprentice automotive mechanic,

(5) Of those respondents who did not obtain a job in the automotive industry, 80% had found alternative employment,

(6) 65% of the respondents were still working for their first employer. Most of the others had had two jobs only between November, 1979 and September, 1980.

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APPENDIX

Time One Questionnaire ..... p 65

Time Two Questionnaire ..... p 73

Time Three Questionnaire ..... p 85

Initial and Follow-up letters associated with the Mail Questionnaire ..... p 91

DEPARTMENT OF TECHNICAL AND FURTHER EDUCATION

AUTOMOTIVE ENGINEERING EVALUATION STUDY

TIME ONE QUESTIONNAIRE

The purpose of this questionnaire is to learn a little from students in automotive engineering courses about why they chose their course, what they think about work and what are their plans for the future.

All the answers you give are confidential - we are not going to tell anyone "who said what".

It is important to answer each question carefully and honestly.

Office Use Only

1, 2, 3, 4.

LEAVING SECONDARY SCHOOL

1. When did you leave secondary school? ... ___(month) 19__(year)
(Please give the month and the year)

2. In what Year or Form did you leave secondary school? ..... Before finishing Year 10 ... 1
Year 10 ... 2
Year 11 ... 3
Year 12 ... 4

5

3. What type of secondary school was it?
..... Government ... 1
Independent Catholic ... 2
Independent Non-Catholic ... 3

6

4. When you left secondary school did you plan to attend a Technical College?
.... Yes ... 1
No ... 2

7

If YES, what sort of course were you interested in? _____

_____

5. When you left secondary school did you have a specific job or career in mind?
Yes ... 1
No ... 2

8

If YES, please give details: _____

_____

. Did you enrol in a Technical College immediately after leaving secondary school?
Yes ... 1
No ... 2

9

. Since leaving secondary school have you completed any other qualifications?
Yes ... 1
No ... 2

10

If YES, please give details:

(a) Type of qualification: _____

(b) Institution: _____

(c) Year qualification was obtained : 19__

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. Have you worked full-time for more than six months at any time since leaving secondary school and before commencing your present course?

..... Yes ... 1
No ... 2 11

If YES, please give details: _____

_____

_____

9. Think of your decision to leave secondary school and consider how important each of the following reasons were in that decision. Circle 1 if the reason was very important to you and 5 if it was not at all important. Otherwise circle 2, 3 or 4 to show that the reason was fairly important, of some importance or of little importance to you.

	Very important	Fairly important	Of some importance	Of little importance	Not at all important	
I wanted to do a Technical College course instead of staying at school	1	2	3	4	5	12
I liked the idea of getting a job where I could work with my hands	1	2	3	4	5	13
I had enough school education	1	2	3	4	5	14
I had completed the highest year at my school	1	2	3	4	5	15
My parents wanted me to learn a trade	1	2	3	4	5	16
My exam results were not good enough	1	2	3	4	5	17
School did not lead to good job opportunities	1	2	3	4	5	18
I thought I did not have enough ability to keep on studying	1	2	3	4	5	19
My parents did not want me to stay at school	1	2	3	4	5	20
I did not like certain subjects at school	1	2	3	4	5	21
My teachers thought I should not continue	1	2	3	4	5	22

THINKING ABOUT WORK

10. We would like to know how important the following statements are to you in thinking about work. To complete this section, please circle a number between 1 (which indicates VERY IMPORTANT) and 5 (which indicates NOT AT ALL IMPORTANT) for each statement. PLEASE DO NOT LEAVE ANY OUT.

	Very Important				Not at all Important	Office Use Only
1) Work which benefits others	1	2	3	4	5	23
2) Work in which you can create something new	1	2	3	4	5	24
3) Work you can do as fast or slow as you want	1	2	3	4	5	25
4) Work in which you can learn more about how and why things work	1	2	3	4	5	26
5) Work that gives you a feeling of having done a job well	1	2	3	4	5	27
6) Work which you can plan and layout for others to do	1	2	3	4	5	28
7) Work in which you are sure of having a job even in hard times	1	2	3	4	5	29
8) Work in which people look up to you	1	2	3	4	5	30
9) Work in which you get a good salary	1	2	3	4	5	31
10) Work in pleasant surroundings	1	2	3	4	5	32
11) Work in which your fellow workers are the kind of people you like	1	2	3	4	5	33
12) Work in which the supervisor you work for is fair and square	1	2	3	4	5	34
13) Work where you do many different things on the job	1	2	3	4	5	35

YOUR IMMEDIATE PLANS

11. How definite are your plans for a job?

I have a job arranged for when I finish the course 1
I know exactly the kind of job I want 2
I am trying to decide between two or three different kinds of jobs 3
I am considering more than three different kinds of jobs 4
I do not have any specific jobs in mind at this time 5

36

If you have a job arranged please describe it: _____

_____

12. If a job became available during your course would you leave the course to take it? ..... Yes ..... 1 / No 2

37

If YES, please give details: _____

_____

Office Use Only

13. How easy or difficult do you think it will be to get a job suitable to your training when you have finished your course?

Does not apply (I have a job arranged)	1	
Very easy	2	
Fairly easy	3	38
Difficult	4	
Very difficult	5	

14. When was your choice of future job made?

No choice as yet	1	
While in primary school	2	39
While in secondary school	3	
At the time of completing secondary school	4	
After leaving secondary school but before starting this course	5	
Some time after starting in the present course	6	

15. Think of the job you would most like to have. Is your present course in that job area?

Yes	1	
No	2	40

YOUR FUTURE POSSIBILITIES

16. We would like you to think about some of the jobs you might do.

- List all the jobs or occupations you think you could do and would like, if you were able to undertake the necessary training, and if you could get that job when you finished your training.

- List as many jobs as you can, but don't feel you have to fill every space, don't worry about the order.

I could do and would like the following kinds of jobs:

a _____

b _____

c _____

d _____

e _____

f _____

g _____

h _____

i _____

Columns	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
Punch																

SOME BACKGROUND INFORMATION

In this section we would like you to give us some information about yourself and your course.

Office use only.

17. What is your sex? (Circle 1 for male, 2 for female) — 57

Male 1
Female 2

18. What is your age? ..... years — 58 59

19. What type of course are you enrolled in? (please circle) — 60

Pre-apprenticeship course 1
Trade course 2

20. What is your highest pass in English (please circle) — 61, 62

A pass at School Certificate Grade 5 level 1
A pass at School Certificate Grade 4 level 2
A pass at School Certificate Grade 3 level 3
A pass at School Certificate Grade 2 level 4
A pass at School Certificate Grade 1 level 5
A pass at Year 11 Unit 2A level 6
A pass at Year 11 Unit 2 level 7
A pass at Higher School Certificate Unit 2A Level 8
A pass at Higher School Certificate Unit 2 Level 9
A pass at Higher School Certificate Unit 3 Level 10

21. What is your highest pass in Maths? (please circle) — 63, 64

A pass at School Certificate Grade 5 level 1
A pass at School Certificate Grade 4 level 2
A pass at School Certificate Grade 3 level 3
A pass at School Certificate Grade 2 level 4
A pass at School Certificate Grade 1 level 5
A pass at Year 11 Unit 2A level 6
A pass at Year 11 Unit 2 level 7
A pass at Year 11 Unit 3 level 8

(see next page)

A pass at Higher School Certificate Unit 2A level	9
A pass at Higher School Certificate Unit 2 level	10
A pass at Higher School Certificate Unit 3 level	11
A pass at Higher School Certificate Unit 4 level	12

THINKING ABOUT YOURSELF

22. Listed below are twenty statements which you might make in thinking about yourself. Please read them as if you were describing yourself to yourself. Read each statement carefully and then select one of the five answers listed across the top of the page. Put a circle around the number which corresponds to that answer.

	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true	Office use only
1. I should try harder to learn in Theory class.	1	2	3	4	5	65
2. I am good at working with tools in the automotive workshop.	1	2	3	4	5	66
3. I often don't understand what the teacher is trying to teach in theory lessons.	1	2	3	4	5	67
4. When it comes to doing practical work in the workshop I am one of the better students in the class.	1	2	3	4	5	68
5. I know a lot about how to find and keep a job.	1	2	3	4	5	69
6. I am the sort of person who can get on well with the boss.	1	2	3	4	5	70
7. I could work harder than I do.	1	2	3	4	5	71
8. I am not very clever, so I won't ever be a success at work.	1	2	3	4	5	72
9. I am a good-looking person.	1	2	3	4	5	73
10. I am not very attractive to the opposite sex.	1	2	3	4	5	74
11. I am pleased with my looks the way they are.	1	2	3	4	5	75

	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true	Office use only
12. When I am working on a car I often am very clumsy.	1	2	3	4	5	76
13. I am calm and easy going.	1	2	3	4	5	77
14. People in my class think I am a nobody.	1	2	3	4	5	78
15. I wish I didn't give in as often as I do.	1	2	3	4	5	79
16. When people blame me for something I don't get angry.	1	2	3	4	5	80
						Card 2
17. I am an unfriendly person.	1	2	3	4	5	1
18. I try to get on with others but without "crawling".	1	2	3	4	5	2
19. I see the good side of all the people I meet.	1	2	3	4	5	3
20. It is hard for me to start talking to people I don't know.	1	2	3	4	5	4

DEPARTMENT OF TECHNICAL AND FURTHER EDUCATION

AUTOMOTIVE ENGINEERING - TIME TWO QUESTIONNAIRE

The purpose of this questionnaire is to learn a little from students about what they think about their course and what they think about work.

All the answers you give are confidential.

It is important to answer each question carefully and honestly.

Office Use Only

1 2 3 4

THE COURSE IN GENERAL

1. What type of course are you enrolled in? (Please circle one number)

Pre-apprenticeship course	.....	1
Trade course	.....	2

5

2. How interesting do you find your course? (Please circle one number)

Very boring	.....	1
Rather dull	.....	2
Fairly interesting	.....	3
Very interesting	.....	4
Extremely interesting	.....	5

6

3. What is your overall evaluation of your course? (Circle one number)

Very satisfied with my course	.....	1
Satisfied with my course	.....	2
Uncertain	.....	3
Dissatisfied with my course	.....	4
Very dissatisfied with my course	.....	5

7

4. How useful is your course for the type of occupation you expect to have or now have? (Circle one number)

Very useful and relevant	.....	1
Fairly useful	.....	2
Not very useful	.....	3
Of some slight relevance	.....	4
Almost completely irrelevant and useless	.....	5

8

Office Use Only

5. In your present course how well do you do compared with other students? (Circle one number)

Below average	 1	9
Average	 2	
Above average	 3	
In top 20% of class	 4	
Near top of class	 5	

6. Listed below are some comments students sometimes make. Are these true of your course in general? (Circle one number in each row).

	Strongly agree	Agree	Don't know	Disagree	Strongly disagree	
General work pressure is too great.	1	2	3	4	5	10
There is not enough time for study.	1	2	3	4	5	11
There are too many hours in class.	1	2	3	4	5	12
There is too much emphasis on vocational training.	1	2	3	4	5	13
Course demands too much mechanical learning and not much individual thinking.	1	2	3	4	5	14
Too much like secondary school.	1	2	3	4	5	15

PROBLEMS

7. We are interested in general problem areas you might have in your course and <u>if</u> you have had problems <u>whether</u> you have had enough help with them.

	Difficulties				Help				
	Usually Yes	Sometimes	Usually No		Enough	Some	None	Does not apply	Office Use Only
Mathematics	1	2	3	16	1	2	3	4	17
Reading	1	2	3	18	1	2	3	4	19
Writing	1	2	3	20	1	2	3	4	21
Practical Skills	1	2	3	22	1	2	3	4	23
Other (describe)	1	2	3	24	1	2	3	4	25
_____				Office use only					
_____									

8. HOW PRACTICAL IS THE COURSE?

Listed below are some statements concerned with practical aspects of courses. Think about how well each statement describes the course you are doing. Indicate your answer by drawing a circle around one number in each row.

	Strongly agree	Agree	Don't know	Disagree	Strongly disagree	Office use only
The course includes many really practical subjects.	1	2	3	4	5	26
The atmosphere is practical and useful things are explained.	1	2	3	4	5	27
Students are more interested in job training than a general education.	1	2	3	4	5	28
Most students are interested in their present or future jobs.	1	2	3	4	5	29
Many teachers stress the practical uses of their subject so that a student may apply what he has learned in a job.	1	2	3	4	5	30
Learning to work with others is important here.	1	2	3	4	5	31

Office use only

TEACHING

9. Think of the teacher at your college who teaches you for most or all of your course. Indicate whether you agree or disagree with the following statements about him by circling the appropriate number opposite each item. Circle 1 if you agree strongly with the statement, and 5 if you disagree strongly. Otherwise circle 2 or 4 to show that you tend to agree or disagree, and circle 3 only if it is really impossible to decide.

	Strongly agree	Agree	Don't know	Disagree	Strongly disagree	
Uses everyday practical examples of topics discussed.	1	2	3	4	5	32
Provides some work for students which is similar either to what they would do when they finish the course, or to what they are doing now in their job.	1	2	3	4	5	33
Sets tasks which are useful and satisfying.	1	2	3	4	5	34
Discusses the relevance of topics for our society.	1	2	3	4	5	35
Discusses the usefulness and relevance of each topic for your present or future job.	1	2	3	4	5	36
States clearly the purpose of each piece of work.	1	2	3	4	5	37
Explains things clearly at the students level.	1	2	3	4	5	38
Enables you to work at your own pace.	1	2	3	4	5	39
Gives enough time to complete a job.	1	2	3	4	5	40
Actively involves students in lessons.	1	2	3	4	5	41
Has motivated you to do your best work.	1	2	3	4	5	42
Treats students as adults.	1	2	3	4	5	43
Encourages students to be responsible for their actions.	1	2	3	4	5	44
States clearly the standards which are expected of students.	1	2	3	4	5	45

	Strongly agree	Agree	Don't know	Disagree	Strongly disagree	Office use only
Provides a lot of information about your progress.	1	2	3	4	5	46
Lets you select topics, problems and examples.	1	2	3	4	5	47
Encourages students to co-operate with each other in jobs.	1	2	3	4	5	48
Encourages students to think about their future life.	1	2	3	4	5	49
Requires accurate calculations with numbers.	1	2	3	4	5	50

Office use only

YOU AND YOUR WORK

10. Consider the following statements about typical working conditions. Compare your working conditions in Technical College with <u>what you think the working conditions</u> would be like for:

(i) a student in a high school, and

(ii) someone in full-time employment.
(Circle one number in each row).

		Never	Rarely	Sometimes	Often	
Responsible for ones own work						
in Technical College	.....	1	2	3	4	51
in work	.....	1	2	3	4	52
in High School	.....	1	2	3	4	53
The jobs and activities are worthwhile and useful						
in Technical College	.....	1	2	3	4	54
in work	.....	1	2	3	4	55
in High School	.....	1	2	3	4	56
Being asked to decide how the job should be done						
in Technical College	.....	1	2	3	4	57
in work	.....	1	2	3	4	58
in High School	.....	1	2	3	4	59
Being treated as an adult						
in Technical College	.....	1	2	3	4	60
in work	.....	1	2	3	4	61
in High School	.....	1	2	3	4	62
Being able to work with up-to-date equipment						
in Technical College	.....	1	2	3	4	63
in work	.....	1	2	3	4	64
in High School	.....	1	2	3	4	65
Feeling part of a team						
in Technical College	.....	1	2	3	4	66
in work	.....	1	2	3	4	67
in High School	.....	1	2	3	4	68

YOUR COURSE

11. Some of the things your course aims to teach or develop are listed below. For each item you are asked to indicate by circling two numbers,

(i) How much emphasis <u>has been given to it</u> in your course this year?

AND (ii) How much emphasis, in your opinion, <u>should have been given to it</u> this year?

	(i) How much emphasis HAS been given to this?					(ii) How much emphasis SHOULD HAVE been given to this?					Office use only
	A great deal	Mod-erate	Some	Slight	Little or none	A great deal	Mod-erate	Some	Slight	Little or none	
Emphasis on skills, knowledge and techniques for the practice of a present or future job.	1	2	3	4	5	1	2	3	4	5	69, 70
Development of self-awareness and self-confidence and an understanding of other people.	1	2	3	4	5	1	2	3	4	5	71, 72
83 Development of attitudes which will assist you to settle into a job.	1	2	3	4	5	1	2	3	4	5	73, 74
The ability to read, write and use numbers.	1	2	3	4	5	1	2	3	4	5	75, 76
Learning about our society.	1	2	3	4	5	1	2	3	4	5	77, 78

90

THINKING ABOUT WORK

12. We would like to know how important the following statements are to you in thinking about work. To complete this section, please circle a number between 1 (which indicates VERY IMPORTANT) and 5 (which indicates NOT AT ALL IMPORTANT) for each statement. PLEASE DO NOT LEAVE ANY OUT.

	Very Important				Not at all Important	Office use only
1) Work which benefits others	1	2	3	4	5	79
2) Work in which you can create something new	1	2	3	4	5	80

Card 2

1 2 3 4

3) Work you can do as fast or slow as you want	1	2	3	4	5	5
4) Work in which you can learn more about how and why things work	1	2	3	4	5	6
5) Work that gives you a feeling of having done a job well	1	2	3	4	5	7
6) Work which you can plan and layout for others to do	1	2	3	4	5	8
7) Work in which you are sure of having a job even in hard times	1	2	3	4	5	9
8) Work in which people look up to you	1	2	3	4	5	10
9) Work in which you get a good salary	1	2	3	4	5	11
10) Work in pleasant surroundings	1	2	3	4	5	12
11) Work in which your fellow workers are the kind of people you like	1	2	3	4	5	13
12) Work in which the supervisor you work for is fair and square	1	2	3	4	5	14
13) Work where you do many different things on the job	1	2	3	4	5	15

3. How definite are your plans for a job?

Does not apply - I already have a job ..... 1 — 16

I have a job arranged for when I finish the course 2

I know exactly the kind of job I want 3

I am trying to decide between two or three different kinds of jobs 4

I am considering more than three different kinds of jobs 5

I do not have any specific jobs in mind at this time 6

If you have a job arranged please describe it: _____

_____

YOUR FUTURE POSSIBILITIES

14. We would like you to think about some of the jobs you might do.

- List all the jobs or occupations you think you could do and would like, if you were able to undertake the necessary training, and if you could get that job when you finished your training.
- List as many jobs as you can, but don't feel you have to fill every space, don't worry about the order.

I could do and would like the following kinds of jobs:

a _____

b _____

c _____

d _____

e _____

f _____

g _____

h _____

i _____

Columns	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Punch																

THINKING ABOUT YOURSELF

15. Listed below are twenty statements which you might make in thinking ab ut yourself. Please read them as if you were describing yourself <u>to yourself</u>. Read each statement carefully and then select one of the five answers listed across the top of the page. Put a circle around the number which corresponds to that answer.

	Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true	Office use only
1. I should try harder to learn in Theory class.	1	2	3	4	5	33
2. I am good at working with tools in the automotive workshop.	1	2	3	4	5	34
3. I often don't understand what the teacher is trying to teach in theory lessons.	1	2	3	4	5	35
4. When it comes to doing practical work in the workshop I am one of the better students in the class.	1	2	3	4	5	36
5. I know a lot about how to find and keep a job.	1	2	3	4	5	37
6. I am the sort of person who can get on well with the boss.	1	2	3	4	5	38
7. I could work harder than I do.	1	2	3	4	5	39
8. I am not very clever, so I won't ever be a success at work.	1	2	3	4	5	40
9. I am a good-looking person.	1	2	3	4	5	41
10. I am not very attractive to the opposite sex.	1	2	3	4	5	42
11. I am pleased with my looks the way they are.	1	2	3	4	5	43
12. When I am working on a car I often am very clumsy.	1	2	3	4	5	44
13. I am calm and easy going.	1	2	3	4	5	45
14. People in my class think I am a nobody.	1	2	3	4	5	46

		Completely false	Mostly false	Partly false and partly true	Mostly true	Completely true	Office use only
15.	I wish I didn't give in as often as I do.	1	2	3	4	5	47
16.	When people blame me for something I don't get angry.	1	2	3	4	5	48
17.	I am an unfriendly person.	1	2	3	4	5	49
18.	I try to get on with others but without "crawling".	1	2	3	4	5	50
19.	I see the good side of all the people I meet.	1	2	3	4	5	51
20.	It is hard for me to start talking to people I don't know.	1	2	3	4	5	52

THANK YOU FOR ANSWERING THESE QUESTIONS

NSW DEPARTMENT OF TECHNICAL AND FURTHER EDUCATION

QUESTIONNAIRE FOR FORMER PRE-APPRENTICESHIP STUDENTS IN AUTOMOTIVE ENGINEERING

How to answer: For most questions you will need to draw a circle around the number next to the answer you choose.
For a few questions you will need to write your answer in the space provided below the question.

OFFICE USE ONLY

1. Have you obtained a full-time job since finishing your pre-apprenticeship course last year? (Note - please regard an apprenticeship as a full-time job).

Yes 1
No 2 3

If No, go to Question 9. →

If Yes, continue.

↓

2. What was your first full-time job after finishing your course last year? (Include temporary jobs while waiting for a permanent job, if they were full-time).

_____

_____

3. Do you consider that your first job was in the automotive trade area (e.g. auto mechanic)?

Yes 1
No 2 4

Are you still working for your first employer?

Yes 1
No 2 5

If Yes, go to Question 9. →

If No, continue.

↓

JOB CHANGES

9. Have you changed jobs so you could get an apprenticeship in the automotive engineering trade area?

Yes 1
No 2 6

OFFICE ONLY

6. Have you changed jobs to move out of the automotive engineering trade area?

Yes 1
No ..... 2 — 7

7. How many jobs have you had since finishing your course? (Count full-time and part-time jobs).

Two jobs 1
Three jobs ..... 2 — 8
More than three jobs 3

8. Consider your most recent change of employment (it may have been your only change of employment).

How important were the following reasons for your most recent change? Please indicate by circling the appropriate number, how important each of these reasons was in your decision.

	Very important	Important	Slightly important	Unimportant	Not at all important	
I obtained an apprenticeship in the automotive engineering field.	1	2	3	4	5	9
A job with better pay arose.	1	2	3	4	5	10
Obtained a job outside the automotive industry.	1	2	3	4	5	11
Changed from part-time to full-time work outside the automotive industry.	1	2	3	4	5	12
The people I worked with were unfriendly.	1	2	3	4	5	13
Unpleasant working conditions.	1	2	3	4	5	14
Job was boring and uninteresting.	1	2	3	4	5	15
The boss was not fair and square.	1	2	3	4	5	16
I was dismissed (the firm closed).	1	2	3	4	5	17
I was retrenched.	1	2	3	4	5	18
I was dismissed (other reasons).	1	2	3	4	5	19
Wanted to do more useful work.	1	2	3	4	5	20
Wanted to follow a new interest.	1	2	3	4	5	21
Lack of encouragement from family members.	1	2	3	4	5	22
Other reason (please specify)	1	2	3	4	5	23

OFFICE USE ONLY

YOUR PRESENT OCCUPATION

9. Which of the following statements best describes your present job?

Working full-time in a permanent job.	 1	
Working full-time in a temporary job.	 2	
Working part-time.	 3	
Not employed, looking for work.	 4	24
Not employed, not looking for work.	 5	
Home duties.	 6	
Full-time study.	 7	

10. What type of job is your present job?

An apprenticeship as an automotive mechanic.	 1	
An apprenticeship in a trade area related to automotive engineering.	 2	
A non-apprenticed job in the automotive industry.	 3	25
An apprenticeship in a trade area not related to automotive engineering.	 4	
A non-apprenticed job in a trade area not related to automotive engineering.	 5	
A job in a non-trade area.	 6	
I don't have a job.	 7	

OFFICE USE ONLY

11. (a) If you are now apprenticed as an automotive mechanic, please indicate what type of firm you work for.

Car dealership.	.....	1
Service station or general workshop.	.....	2
Automotive specialist (brake specialist, engine tuner, etc.).	.....	3
Truck repair firm.	.....	4
Plant equipment firm.	.....	5
Motorcycle repair firm.	.....	6
Other (please specify) _____		
_____	.....	7

26

(b) What are the main duties of your job? (list three or four).

_____

_____

_____

_____

12. If you have a job outside the automotive industry please tell us what it is.

_____

_____

13. How long did it take you to find a full-time job after you finished your Automotive Pre-apprenticeship course last year?

Less than 1 month.	.....	1
Between 1 and 3 months.	.....	2
Between 4 and 6 months.	.....	3
More than 6 months.	.....	4
Does not apply - I found a job before I finished the course.	.....	5
Does not apply - I still haven't got a full-time job.	.....	6

27

OFFICE USE ONLY

YOU AND YOUR WORK

14. If you now have a full-time job (whether it is in the automotive industry or not) consider the following statements about working conditions.

Once you have read each statement compare your working conditions in your job with what the working conditions are like for

(i) a student in a Technical College.

and (ii) a student in a High School.

(Please circle one number in each row).

		Never	Rarely	Sometimes	Often	
Responsible for ones own work						
in Technical College	.....	1	2	3	4	28
in work	.....	1	2	3	4	29
in High School	.....	1	2	3	4	30
The jobs and activities are worthwhile and useful						
in Technical College	.....	1	2	3	4	31
in work	.....	1	2	3	4	32
in High School	.....	1	2	3	4	33
Being asked to decide how the job should be done						
in Technical College	.....	1	2	3	4	34
in work	.....	1	2	3	4	35
in High School	.....	1	2	3	4	36
Being treated as an adult						
in Technical College	.....	1	2	3	4	37
in work	.....	1	2	3	4	38
in High School	.....	1	2	3	4	39
Being able to work with up-to-date equipment						
in Technical College	.....	1	2	3	4	40
in work	.....	1	2	3	4	41
in High School	.....	1	2	3	4	42
Feeling part of a team						
in Technical College	.....	1	2	3	4	43
in work	.....	1	2	3	4	44
in High School	.....	1	2	3	4	45

OFFICE USE ONLY

YOUR COURSE LAST YEAR

15. How well did your pre-apprenticeship course prepare you for work?

It aimed to develop certain things and to help you in your change from school to work. Some of these course aims are listed below.

Please indicate by drawing a circle around one number in each row how well your course prepared you for getting and keeping a job.

	Very Well	Well	Fair	Poor	Very Poor	
Taught the practical skills required to do my job.	1	2	3	4	5	46
Taught the knowledge required to do my job.	1	2	3	4	5	47
Developed self confidence and understanding of other people.	1	2	3	4	5	48
Explained what attitudes help you to settle into a job.	1	2	3	4	5	49
Developed basic skills of reading, writing and calculation.	1	2	3	4	5	50
Gave me a general knowledge of society.	1	2	3	4	5	51
Gave me experience of what work is like.	1	2	3	4	5	52
Guided me on how to obtain a job.	1	2	3	4	5	53
Gave me experience of working under pressure.	1	2	3	4	5	54

16. If you have any suggestions for improving the way the Automotive Pre-apprenticeship course prepares people for work please write them down here (or on the other side of the page if necessary).

_____

_____

_____

_____

_____

PLEASE POST THIS BACK AS SOON AS POSSIBLE IN THE ENCLOSED REPLY-PAID ENVELOPE

THANK YOU

New South Wales Government

Department of Technical and Further Education

323 Castlereagh Street
Sydney, N.S.W.
Australia 2000
P.O. Box K638
Haymarket, N.S.W. 2000

Our reference:

Your reference:

Telephone 2 0982

Dear

Last year you participated in a survey about what Pre-apprenticeship Automotive students thought about their course. Now that you have completed the course I would like to find out what you are doing.

The purpose of this study is to gather information which will be used to further improve the Automotive Pre-apprenticeship course for future students. The information and ideas you can give will help us in our aim to improve the course.

Would you please answer the short questionnaire which is attached. You will have seen one of the questions before, but please answer it again.

Your answers to these questions will be treated with the strictest confidence.

It will take you only 5 or 10 minutes to answer the questions. When you have done this, could you please post the questionnaire back using the pre-paid envelope that is enclosed. If you have any enquiries you can ring me on 20-982, ext. 9421.

BOB SMITH,
Education Officer,
Curriculum Services Division.

New South Wales Government

Department of Technical and Further Education

323 Castlereagh Street
Sydney, N.S.W.
Australia 2000
P.O. Box K638
Haymarket, N.S.W. 2000

Our reference:

Your reference:

Telephone: 2 0982

Follow-up Letter 1

Dear

I would like to remind you of the questionnaire which I recently sent you about your pre-apprenticeship course last year. Would you please send it back soon, as the information you can give me is essential and will help to improve the course. I have included another copy and a reply-paid envelope in case you have lost the first.

If you have returned your questionnaire this letter does not apply to you.

BOB SMITH,
Education Officer,
Curriculum Services Division.

New South Wales Government

Department of Technical and Further Education

323 Castlereagh Street
Sydney, N.S.W.
Australia 2000
P.O. Box K638
Haymarket, N.S.W. 2000

Our reference:

Your reference:

Telephone: 2 0982

Follow-up Letter 2

Dear

I want to remind you of the questionnaire which I sent you 5 weeks ago concerning your pre-apprenticeship course last year. It is very important that you complete and return it because this will allow us to find out what happened to all of the 1979 pre-apprenticeship students at your College. A large number of the questionnaires have been returned by now.

I enclose another copy of the questionnaire and a reply-paid envelope.

BOB SMITH,
Education Officer,
Curriculum Services Division.